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UNIVERSITY OF ALBERTA

SOCIAL SUPPORT AND MATERNAL-INFANT INTERACTION IN OLDER ADOLESCENT MOTHER-INFANT DYADS

BY

© DEBORAH WHITE

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF NURSING

FACULTY OF NURSING

EDMONTON, ALBERTA

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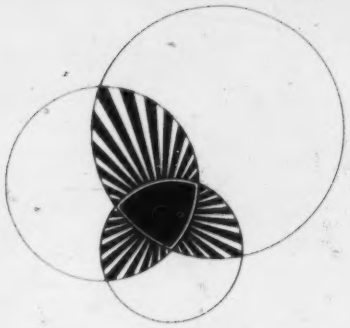

NCAST

Nursing Child Assessment Satellite Training

September 19, 1988

Debbie White
P.O. Box 156 Gleichen
Edmonton, Alberta
CANADA TOJ 1NO

Dear Debbie,

I am sorry for my delay in responding to you. Thank you for letting me know about your study.

Since you have been trained in the NCAST scales, and I assume have met the requirements of reliability, there is no need to have permission to use the scales. Your training is all that is required.

Best Regards,

Kathryn E Barnard

Kathryn E. Barnard
Professor, Parent/Child Nursing

KEB:vl

CDMRC, Res. 110, WJ-10 University of Washington Seattle, Washington 98195 Phone: (206) 543-8528

APPENDIX A

Request Form

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Debbie White
(Signature)

July 20, 1988
(Date) University of Alberta

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P.O. Box 156 Bleichen, Alberta Canada
T0J 1N0

Permission is hereby granted to copy the NSSQ for use in the research described above.

Jane S. Norbeck
Jane S. Norbeck

7/27/88
(Date)

Please send *two signed* copies of this form to:

Jane S. Norbeck, D.N.Sc.
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University of California, San Francisco
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San Francisco, California 94143

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SUBMITTED BY DEBORAH ELIZABETH WHITE

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN NURSING.

Jessie Anne Field

DR. P. A FIELD

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DATE December 18, 1989.

Abstract

The quality of adolescent mothering has long been a concern to health care providers. Professional concern has traditionally been centered around the impact of adolescent parenting on the mother's life and her capacity to provide a nurturing environment for her infant. The age of the mother and the support that is available to her are two important variables that may influence the mother's ability to interact appropriately with her infant. Young mothers and infants who are isolated from a supportive social environment may suffer from the many psychosocial, economic and educational consequences of early child-rearing.

The purpose of this study was to examine the relationships between social support, size of social network and maternal-infant interaction in adolescent mother-infant dyads. A causal-comparative design was used to examine and explain variations in maternal-infant interaction in relation to selected social support dimensions. A causal-comparative design was used to examine and explain variations in maternal-infant interaction in relation to selected social support dimensions.

A convenience sample of 30 adolescent mother-infant dyads was selected from two city hospitals. The mothers were 17 to19 years of age. Data on the mother's social support (size of network; affect, affirm, and aid support) and maternal-infant interaction were collected at the mother's home six to seven weeks following delivery. The instruments used were the Norbeck Social Support Questionnaire and the Nursing Child Assessment Feeding Scale.

Results of the study indicate that the partner and the maternal grandmother provide a substantial proportion of the emotional support to the adolescent mother. Emotional

support was significantly related to maternal behavior in interaction with the infant. In addition,affect support also was significantly related to maternal-infant interaction. Instrumental support (aid) was not related to maternal-infant interaction. Aid support was related to the size of the social network; mothers with larger networks receiving less aid. The size of the social network was positively associated with sensitive maternal behavior. Adolescent mothers living with their families were reported to have more responsive maternal-infant interaction as indicated by higher mean maternal-infant interaction scores.

ACKNOWLEDGEMENTS

I gratefully acknowledge: the nursing staff for their assistance in contacting families and the adolescent mothers for their participation in the study. I would like to acknowledge the support and contributions of my committee members Dr. P. A. Field, Dr. M Harrison, and Dr. R. Frender. My sincere appreciation to Dr. Field who has been extremely supportive both throughout my program and the writing of my thesis. A very special thanks to Dr.M. Harrison for her words of encouragement. Dr. Harrison was instrumental in assisting during the writing of my thesis. My appreciation to Dr. Frender who always proposed one more question for me to think about. Dr. Frender's questions regarding my research facilitated my growth personally and professionally.

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CHAPTER 1

INTRODUCTION

Children having children has been cited as a national tragedy (National Council of Welfare, 1981). In 1986, an estimated 55,000 adolescent pregnancies occurred in Canada (Vital Statistics Canada,1985, Table 12). Although a considerable number of adolescent pregnancies ended in abortion, there were 21,452 live births in adolescents aged fifteen to nineteen years old. In addition the unmarried adolescent mothers who opted to keep their infants rose from 78% in 1971 to approximately 90% in 1983 (McKay & Austin, 1983).

For adults the transition to parenthood has been described as a stressful event due to the many readjustments with which they must cope (Mercer, 1980). For the adolescent mother this transition has been reported to be more distressing since she is simultaneously confronted with two maturational events--motherhood and adolescence (Le Resch, Shrobino, Parks, Fischer, & Smerglio, 1983).

This accelerated role transition of the adolescent mother is likely to affect not only her own well-being but also the well-being of her infant. Emotionally, the adolescent mother is more egocentric, which could influence her attentiveness to her infant's needs and the sensitivity of the mother's parental behaviors (Elster, McAnarney, & Lamb, 1983). In addition, the relative cognitive immaturity of the young mother may inhibit or retard the development of the infant (Fry,1985; Larsen & Juhasz, 1985). Consequently, the adolescent mother may need to rely heavily upon her social network to help her cope with the stresses of motherhood and assist her in providing a sensitive, nurturing environment for her infant. Learning more about the nature and structure of social support components as related to adolescent mother-infant interaction will provide a firm foundation for the designing and testing of nursing interventions to assist young mothers in obtaining the

support they need. By understanding more about the social support and social network of adolescent mothers, practitioners can be supportive of both the social network members and the young mother's positive parenting attempts.

STATEMENT OF THE PROBLEM

For the adolescent mother, the insecurity of adolescence, unpredictable behavior of the young infant, and the contextual sources of stress and support are several variables that could influence the mother's ability to provide contingent, consistent and appropriate responses to her infants' cues (Belsky, 1984; Elster et al., 1983). The parenting profile describing adolescent mother-infant interaction indicates that these mothers are: insensitive and less responsive to their infant's needs (McAnarney, Lawrence, Ricciuti, Polley, & Szilagyi, 1986), engage in relatively little verbal interaction (Osofsky & Osofsky, 1970), and demonstrate less positive affect toward their infants (Levine, Coll, & Oh, 1985). Cochran and Brassard (1979) believe that the mother's ability to engage in meaningful interaction with the infant is influenced, in part, by the support the social network provides to the parent.

Research data have consistently indicated that school-aged children of adolescent mothers have lower academic achievement, lower I.Q. scores and less advanced motor development (Broman,1981; Hardy, Welcher, Stanley, & Dallas, 1978; Oppel & Royston, 1971). It is not known whether the child's poor developmental outcome is related to young maternal age, resulting consequences of early childrearing, a lack of social support to the mother to ameliorate the stress in their lives or combinations of these factors.

To date, a paucity of research exists concerning the nature and structure of the social networks of Canadian adolescent mothers and how the network members and the support

provided by the social network affect adaptive mother-infant interaction in the early months of the infant's life. For clinicians responsible for promoting the health and well- being of young mothers and their infants, identification of variables associated with optimal maternal-infant interaction could enhance the quality of life for the adolescent mother-infant population.

Purpose of the Study

The purpose of this causal-comparative study was to examine the relationship between social support and maternal-infant interaction in older adolescent mother-infant dyads.

Research Questions

The following research questions were posed for this study:

Who comprises the social network of the adolescent mother?

What social support does the adolescent mother perceive as available?

What is the relationship between perceived social support and maternal-infant interaction?

What is the relationship between the size of the social network and maternal-infant interaction?

Definition of Terms

The following definitions will be used in this study:

Social Support Dimensions

THEORETICAL - Social support is comprised of the interpersonal transactions that include one or more of the following components: the expression of positive affect from one person to the other (AFFECT), the affirmation or endorsement of another person's behaviors, perceptions (AFFIRMATION), and the giving of material aid to another (AID). These functional components are supplied through a "convoy" or supportive network consisting of persons who rely on one another for support (Kahn, 1979). This convoy includes the number of members in the network, the duration of relationships and the frequency of contact with network members. Norbeck (1981) added the dimension of network loss since the convoy may change over a period of time.

OPERATIONAL - Social support was measured by scores obtained on the Norbeck Social Support Questionnaire which include a TOTAL FUNCTION SCORE, TOTAL NETWORK SCORE and a TOTAL LOSS SCORE. (See Appendix A--Norbeck Social Support Questionnaire). A composite TOTAL EMOTIONAL SCORE was calculated by addition of the affect and affirm subscales of the Norbeck questionnaire.

Maternal-Infant Interaction

THEORETICAL - Maternal-infant interaction refers to maternal and infant behaviors which facilitate synchrony and adaptation of the mother-infant dyad (Barnard, 1978). Parental behaviors include sensitivity to cues, response to distress, socio-emotional growth

fostering, and cognitive growth fostering. Infant behaviors include clarity of cues and responsiveness to parent.

OPERATIONAL - Maternal-infant interaction was measured by scores obtained on the Nursing Child Assessment Feeding Scale. (See Appendix B--Nursing Child Assessment Feeding Scale.)

Older Adolescent Mother

THEORETICAL - A female between the ages of 17 and 19, who has assumed a maternal functioning role.

OPERATIONAL - A female between the ages of 17 and 19 at the time of birth of her first infant.

Assumptions

1. Adolescent parenting is a stressful event for mothers.

2. Perceptions of support and the availability of social network members may be influenced by personal characteristics of the mother.

3. Individual characteristics of the mother affect her ability to utilize social support.

4. Social support provided by the social network members has an influence on maternal role transition as observed in maternal-infant interactions.

5. The mother and the infant are individual open systems but together are an interactive system.

6. Infants are capable of eliciting cues and also providing cues.

7. The mothers will accurately complete the biographic data sheet and the Norbeck Social Support Questionnaire.

8. The investigator will have no or minimal effect on the mother-infant -interaction.

Conceptual Framework

The conceptual framework for this study is an adaptation of components of the general systems framework by vonBertalanffy (1962). In the systems framework human beings are seen as open systems capable of exchanging energy and information with the environment. For the purpose of this study, the mother and infant are viewed as individual open systems interactive with each other and the social network members within their environment. The social network members also are open systems. The exchange of energy and information between the mother, infant, and the social network members can be positive or negative. The reciprocal interaction between mother and infant is believed to be influenced by the mothers' participation within this network. The adolescent mother's network may also influence the infant directly by providing both cognitive and social stimulation, that is, network members may engage in different interactions with the infant thus broadening the range of interaction patterns available to the infant (Cochran & Brassard,1979).

The mother, infant, and the social network each have unique contributions to the interaction process that occurs between the mother and infant. The mother's ability to be responsive to her infant requires that she is able to interpret her infant's needs and cues and respond appropriately to these. Individual characteristics of the mother such as education, personality, and previous childcare experiences will affect the interactive dialogue that

occurs between the mother and infant. Personal characteristics of the mother influence both the mode of interaction and the type of stimulation the mother provides to her infant.

The infant also possesses a repertoire of behaviors that influence the response of both the mother and the social network to him or her. The infant characteristics include perceptual abilities such as seeing and hearing, smiling, soothability, physical adaptation of the body to being held, and regularity or predictability of response (Barnard, 1978). The infant sends a variety of cues such as sleepiness, alertness, fussiness, hunger and satiation. The clarity with which these cues are sent will make it either difficult or easy for the mother to respond to the infant.

The social network can be directly or indirectly involved in the quality of mother-infant interaction. Social network members can provide a variety of functions, such as cognitive guidance, social reinforcement, tangible assistance, social stimulation, and emotional support (Cochran & Brassard, 1979). These functions may affect parental sensitivity by alleviating stress, increasing the parents' knowledge of child development, enhancing self-esteem and perceived effectiveness, or providing practical assistance. The social network members which serve as a principal source of social support in the adolescent mother's life also serve as principal environmental source of social support in the infant's life. Network members who demonstrate love, caring, and engage in supportive social interactions with the mother are likely to respond to the infant in a similar manner.

Figure 1 demonstrates the interactive process between mother, infant, and social network members. The focus of the study is the reciprocal interaction between the mother,infant, and the influence of the social support functions of the mother's network. The adequacy of social support is assumed to have an effect on the interaction through influence on the mother's ability to be sensitive and responsive.

Significance of the Study

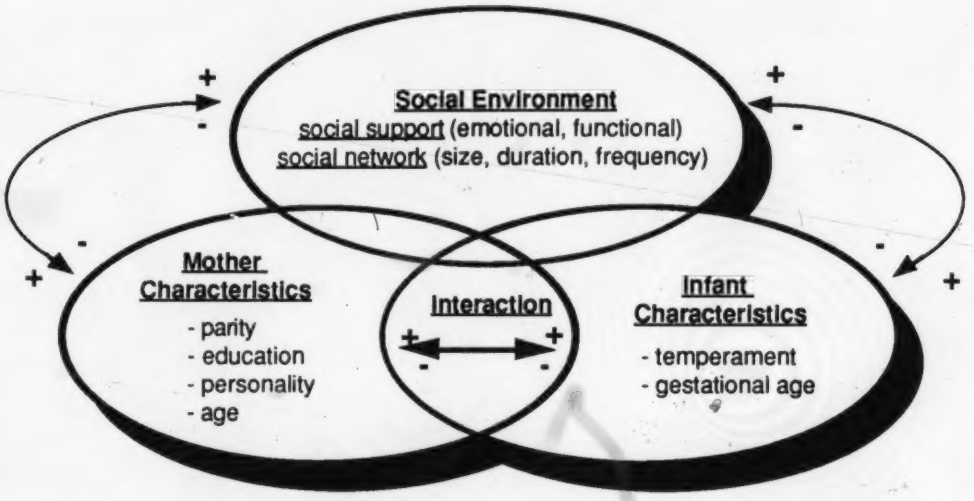
Much of the previous research on adolescent mother-infant dyads has been done by two separate groups: sociologists examining the consequences of early child-rearing for the mother and infant, and developmental psychologists who are interested in both the development of the infant and mother. A number of investigators have found that high quality interactions during the first years of life tend to be positively linked to the child's later cognitive and emotional development (Beckwith & Cohen, 1984; Coates & Lewis, 1984; Olson, Bates, & Bayles, 1984).

For a fuller understanding of the context in which the infant develops, a closer exploration of specific characteristics of the environment and distinct characteristics of maternal-infant interaction are required. Practioners would be able to enhance this interactive dialogue if more information about the factors influencing maternal-infant interaction was known. This study will add to the body of literature that emphasizes the importance of the social environment in which parenting behavior occurs.

Outline of the Report

A summary of the literature on the potential influence of social support to maternal-infant interaction is presented in Chapter Two. The design of the study is outlined in Chapter Three and includes descriptions of the instruments used, criteria for sample selection, the process of data collection, and the analysis completed. The findings of the study are presented in Chapter Four. Chapter Five includes a summary and discussion of the findings with recommendations for the future.

Figure 1: Conceptual Framework of Mother-Infant-Social Environment



CHAPTER 2

REVIEW OF RELATED RESEARCH

The major areas that provided the organizational framework for this review were maternal-infant interaction, social support and parenting, and social support and adolescent parenting.

Maternal-Infant Interaction

Research studies suggest that warm, sensitive, and nurturing caregiving by the mother, enhances optimal development in the child (Campos, Barrett, Lamb, Goldsmith, & Stenberg, 1983; Beckwith & Cohen,1980). For example, math achievement and language skills at four years of age were found to be associated with mother-infant interaction (Bee, Barnard, Eyres, Gray, Hammond, Speitz, Snyder, & Clarke, 1982). In a more recent study in the cognitive area, interactive quality was found to be strongly related to the child's competence, even after partialling out the variance due to such factors as socio-economic status or sociability to the examiner (Olson, Bates & Bayles, 1984; & Beckwith & Cohen, 1984). Finally, children of mothers who were more emotionally and verbally responsive during a home visit at 20 months exhibited more social and cognitive ability at age 3 (Bakeman & Brown, 1980). These studies provide support for the importance of examining adolescent maternal-infant interaction patterns since children of adolescent mothers have been identified as being at risk for developmental delays (Brooks-Gunn, & Furstenburg, 1986; Lawrence & Merritt, 1981; Field,1979; Freidman & Phillips, 1981), and as adolescent mothers are widely regarded as exhibiting atypical parenting behavior.

Few researchers have investigated the behavioral sensitivity of adolescent mothers. Moreover, adolescent mothers have been reported to be more distant emotionally from their

babies, more irritable and punitive, and show less contingent responsiveness to their infants than older mothers (Oppel & Royston, 1971; Phillber & Graham,1981; Roosa, Fitzgerald, & Carlson,1982a; Becker, 1987). Most of the researchers (Mercer,1980; Osofsky & Osofsky,1972) have focused on the various modes (i.e. physical, verbal or visual) by which the mother interacts with her infant. Investigators suggest that adolescent mothers differ from older mothers in behavioral aspects such as lack of talking and playful interactions related to their infants' developmental needs (Sandler, Vietz, & O'Connor, 1981; Field,1980).

McAnarney, Lawrence, and Aten (1979) reported a relationship between the chronological age of the mother and her ability to interact with her infant. The younger the mother, the less she demonstrated behaviors such as touching, the use of a high pitched voice synchronous movement and closeness to the infant. McAnarney et al (1986) assessed maternal-infant interactive behavior of 30 lower socio-economic status mothers. The mothers were between 15.5 years to 20 years of age and their infants were 9 to 12 months old. There were significant correlations indicating that younger mothers tended to show less acceptance, less co-operation, less accessibility, less sensitivity, and more negative verbal communication.

Similarly, two descriptive correlational studies which examine the relationship between demographic variables, infant status, and maternal-infant interaction found that adolescent mothers were less aware of and responsive to their infant's distress signal than adult mothers (Jones, Green, & Krauss, 1980; Ragozin, Bashum, Crnic, Greenberg, & Robinson, 1982). Jones et al. (1980) compared maternal responsiveness of 40 primiparous mothers during the early post-partum period and found maternal age to be an important variable influencing maternal readiness for the parental role. The sample

consisted of 17 mothers aged 17 to 18 years, 10 mothers aged 19 to 20 years and 13 mothers aged 21 to 23 years. The findings from this study indicated that older mothers were more responsive to their infants than young mothers regardless of marital status and socio-economic status.

Ragozin et al. (1982) assessed maternal interactive behaviors at four months post-partum for 52 fullterm dyads and 52 preterm dyads. The mothers consisted predominantly of white two-parent families. The mothers ranged from 16 to 38 years of age. Regression analysis revealed that maternal age had a significant effect on the quality of parental behavior as measured by the Nursing Child Assessment Teaching Scale (NCATS), developed by Barnard (1978), even when demographic and psychosocial variables were controlled. The relationship was linear. The younger the mother, the less adequate was her behavior. For maternal elicitation behavior, the interaction of age and parity accounted for 36% of the variance. Optimal elicitation behavior increased sharply with age for primiparous mothers. For maternal affect, an age x parity interaction explained 12% of the variance. There was a strong positive relationship between age and affect for primiparous mothers.

Roosa, Fitzgerald, and Carlson (1982b) conducted a multivariate comparison study of childbearing and childrearing experiences of adolescent (n = 17) and adult (n = 50) mother-infant pairs. The two groups were compared on demographic and socio-economic characteristics, infant temperament, maternal attitudes and maternal-infant interaction. Maternal-infant interaction was measured in terms of mode of behavior, response to distress of infant, and contingent responsivity. Maternal age was highly correlated with the contingent responsivity of the mothers ($r = .56$). Maternal age was moderately correlated with the mother's response to distress ($r=.38$, $p<.05$) and verbalization to the infant

(r=.39, p<.05). Similarly, socio-economic status was correlated with the mother's response to distress (r=.39, p<.05) and verbalization to the infant (r=.42, p<.05).

Taken collectively, the results from these studies suggest there are qualitative differences in the parental behavior of adolescent mothers. It appears that there is a need to look beyond the individual maternal characteristics and to consider the social contexts that surround adolescent mothers and their infants.

Social Support and Parenting

The concept of social support and its relationship to health outcomes has gained considerable attention. Documented benefits of a supportive social network have included improved mental health (Caplan, 1974; Gottlieb, 1983), better postpartum adjustment (Cronwett, 1985a; Levitt, Weber, & Clark, 1986; Wandersman & Wandersman, 1980), and provision of a more stimulating home environment for infants and children (Adamakos, Ryan, Ullman, Pascoe, Diaz, & Chessure, 1986; Pascoe & Earp, 1984). Social networks may play a protective role mitigating the effects of stress (Thoits, 1986) however, the network members can create additional stressors through non-supportive, conflictual or interfering interactions (Barrera, 1980; Crawford, 1985; Cronwett, 1985b).

Although combined findings provide evidence of the importance of social support to childbearing families there remains considerable debate in the literature about the nature, meaning, and measurement of social support (Barrera & Ainlay, 1983; Tardy, 1985; Tilden, 1985). In Kahn (1979) and Kahn and Antonucci's (1980) conceptualization of social support, which will serve as the foundation for this study, social support was defined as interpersonal transactions that include the transmission of positive affect, affirmation, or aid. Kahn (1979) has utilized the label "convoy" to describe the social

network. The convoy is the network through which social support is provided and is measured through three network properties: a) number in the network, b) frequency of contact with the network members, and c) duration of relationships. Kahn (1979) has suggested that: a) social networks are determined by demographic and situational variables; b) the formal properties of the social network determine the adequacy of social support; c) the adequacy of social support is a determinant of well-being, of performance in major roles, and of success in managing life transitions. Lastly, the social network and adequacy of social support moderate acute stressors and the criteria of well-being. These propositions are fundamental to this study.

Kahn and Antonnucci's (1980) definition of social support was selected because of their emphasis on viewing social support from a life-course perspective. They suggest that the individuals' roles shift throughout the life cycle as their needs and circumstances change, hence the form and amount of social support at a given time depend on these changing needs and circumstances. Transition to motherhood presents a dramatic change for the adolescent, it is a time when the mother is redefining her roles in relation to her partner, friends, parents, and her infant. The role models, help in the form of resources and information all facilitate this transition process (Silverman, 1982).

Social networks can influence parenting in three ways. First, the social network may influence childrearing behavior by encouraging or discouraging patterns of parent-infant interactions. Second, the social network members can serve as role models for positive childrearing (Cochran & Brassard, 1979; Hobbs & Cole, 1976; Russell,1974). Third, the social network may promote the personal well-being of the mother by providing material, informational, and emotional support which protect her from the stresses associated with

childrearing (Burke &Weir, 1981; Hough & Stephens, 1981). This type of support fosters a more positive environment for both the mother and infant (Bronfenbrenner, 1976).

According to this perspective, social network members influence the emotional state of the mother which in turn influences her behavior with her infant. Investigators have found spousal support to be positively associated with maternal feelings of well-being during the postpartum period (Cronwett, 1984; Levitt, Weber, & Clarke, 1986). The influence of the rest of the mother's social network remains unclear. Several researchers have found emotional support from friends and family to be linked to psychological well-being postpartum (Unger et al, 1985; Wandersman et al,1980), whereas others have not found a significant relationship (Stemp, Turner, & Noh, 1986; Tietjen & Bradley, 1985).

Similarly, results of studies on the influence of the social network members on maternal-interaction are conflicting. Crnic et al (1983) reported that emotional support from spouse, but not support from friends, was positively related to maternal-infant interaction, whereas Lamb and Elster (1985) found that emotional support from friends or family was not related to maternal-infant interaction.

Social Support and Adolescent Parenting

Research examining social support and the influence of the social networks on adolescent childrearing has generally been focused on the effect of received support from family and friends on maternal well-being. Relatively little research has been directed toward examining the relationship between social support dimensions and maternal-infant interaction in the adolescent population.

Thompson (1986) in his study of 296 primiparous mothers under the age of 21 (mean = 17 years) reported that psychological distress was lower for younger mothers who

received support from the partner. Interestingly, self-reports of stress were greater with support from relatives. Colletta and Lee (1983) in their study of 64 Black adolescent mothers aged 14 to 19 years found support from the family in the form of childcare information and childcare arrangement was associated with less emotional stress. Barrera (1981) and Barthe, Schinke, and Maxwell (1983) found support from network members to be related to improved psychological well-being of the adolescent mothers.

Several studies corroborate the link between social support and adolescent maternal feeling, attitude, and behaviors (Colletta, Gregg & Hadler, 1981; Panzarine, 1986). Mercer, Hackley, & Bostrom (1984) reported that at one month postpartum, teenage mothers with high instrumental support had stronger feelings of love toward their babies and a greater sense of competence in the maternal role than did adolescents who lacked social support. Emotional support was also associated with feelings of love and with the young mother's gratification in the mothering role. Mercer (1986), examined predictors of maternal role attainment and found emotional support to be positively associated with nurturing maternal behaviors in a group of adolescent mothers. Colletta (1981) investigated the relationship between social support and maternal behaviors (i.e., warm--affection, aggression--hostility, neglect--indifference, and rejection) in 50 adolescent mothers between the ages of 14 to 19 years of age. With high levels of emotional support mothers were less aggressive, less rejecting, and more affectionate. These relationships were the strongest when the adolescent's own family was the source of support.

Contrary to this finding, Unger and Wandersman (1985) found no significant link between perceived support from the young mother's family and maternal responsive behavior. Coll, Hoffman, and Oh (1987) report the adverse effects of social networks. Although adolescent mothers received more support from their mother and from their peers

than adult mothers they scored significantly lower on Responsiveness and Maternal Involvement subscales of the total Home Inventory (Caldwell, 1979). Perhaps these differences are suggestive of conflictual networks or insufficient provision of various types of support.

A number of investigators have suggested that the extent to which adolescent mothers are deficient as parents and their infants are at risk for developmental delay is a function of the degree of social support provided to them before and after the baby arrives (Crittenden, 1985; Crnic, Friedrich, & Greenberg, 1983a, Dunst, Trivette, & Cross, 1986; Freidrich, Wilturner, & Cohen, 1985). In addition, findings from research studies have provided convincing evidence of the link between maternal-infant interaction and later child development.

Adolescent mother-infant dyads have been identified as a high risk population for atypical parenting yet scant research has been conducted both in the area of maternal-infant interaction and social support in this population. Although studies have measured social support differently, a consistent finding in both adult and adolescent studies is the association of emotional support with maternal well-being. Only four studies were located which examined the relationship of support and maternal behavior in adolescent populations: two studies suggesting emotional support to be related with positive maternal behavior and two studies in which the results did not reflect this relationship. More information is required about the types of support perceived available to the adolescent mothers, the interactive dialogue between the mother and infant, and the relationship of the social network and social support to adolescent maternal-infant interaction.

CHAPTER 3

DESIGN OF THE STUDY

A causal-comparative design was used in this study in order to describe how the selected study variables systematically co-vary. Infants and mothers were observed in their home during a regular feeding time. Biographical data was collected when mother and infant were in hospital. Data on the mother's social support was collected at the time of the interaction observation.

Sample

A non-random convenience sample of thirty adolescent mother- infant dyads was selected from two city hospitals. Adolescent mothers were included in the study if they were primiparous, single or married, between 17 and 19 years of age; delivered vaginally or by cesarean section; spoke, read and understood English, and lived within a one-hour drive from the city. Mothers aged 13 to 16 years of age were not included because of the impossibility of obtaining an adequate sample size in a practical length of time. Furthermore, the younger mother may be functioning at the concrete stage of thinking. A level of thinking which may directly oppose the parental task of forming a mutualistic relationship with the infant (Yoos, 1987) and thus promoting an interactive dialogue between the pair. To adequately examine possible differences between younger and adolescent mothers interaction a larger sample would be required.

The infants were 37 to 42 weeks at the time of delivery and free from any physical anomaly or neurological impairment. Premature infants were excluded because research studies indicate that premature infants appear to be less involved in complementing and less

sensitive to interactions with the mother (Alfasi, Schwartz, Brake, Fifer, & Hofer, 1985; Barnard, Bee, & Hammond, 1984).

Following ethical approval by the committee on Human Research at the University of Alberta and by the Clinical Investigation Committee of the hospital from which the sample was obtained, the investigator met with the postpartum unit supervisors and nursing staff to answer questions pertaining to the research. Daily visits and/or phone calls to all units were made by the investigator to ascertain if there were study subjects who met the criteria for inclusion in the study.

It took five months, January to May 1989, to enroll 30 mother-infant dyads in the study. To allow for attrition forty-five families were approached to participate in the study. Seven mothers refused to participate in the study (Table 1). The most common reason for refusal to participate was the partners or family's desire for the mother not to be in the study.

Mercer (1986) reported a 39% attrition rate for the teenage mothers in her sample. In this study the attrition rate was 15.8 percent (n= 6/38): two mothers relocated to another city and four mothers were not at home for the scheduled visit or repeated phone calls. There were two mothers who were not visited due to the designated sample size being obtained. All mothers were thanked for agreeing to participate in the study and were told that a summary of the study would be sent to them.

Table 1

Frequency of Reasons for Refusal to Participate

Reason	Frequency
Partner did not want mother to participate	3
Family did not want mother to participate	2
Mother not interested	1
Mother did not "want to be watched"	1

Instruments

The two instruments which were used to collect data were: the Nursing Child Assessment Feeding Scale (NCAFS) and the Norbeck Social Support Questionnaire (NSSQ). Demographic data was collected to provide a description of the sample.

Nursing Child Assessment Feeding Scale

The NCAFS is an investigator-related observational measurement of mother-infant interaction (Barnard, 1978). This scale was selected because of its previous use with young infants, and its measurement of individual and contingent behavior of the mother and infant. It was also important to choose a scale for which there was some evidence of validity and for which there was a training program available for interrater reliability.

Feeding is a situation that places the interactive processes of mother and infant within a standardized context and allows for the study of continuous interaction (Spietz, 1978). The investigator believed that a routine versus a novel situation such as teaching would increase the comfort level of the mother in the data gathering situation.

This feeding scale is composed of 76 binary items organized into six subscales, four of which describe the parent's behavior and two of which describe the infant's behavior. The four parental subscales include sensitivity to cues, response to distress, socio-emotional, and growth fostering behaviors. The two infant subscales are clarity of cues given to the parent and responsiveness to parent. The behaviors are scored "yes" if a behavior occurs and "no" if the behavior does not occur during the observation period. Subscale and total scores are determined by adding the number of "yes" responses. Higher scores indicate more optimal interaction.

The reliability and validity of the NCAFS instrument has been demonstrated by other researchers. Reliability measures to establish internal consistency using Cronbach's alpha coefficient were based on the data collected by the Nursing Child Assessment Satellite Training Program trainees since 1979 (Barnard, 1983). The Cronbach's alpha coefficients for parent and infant total scores at one month to eleven months were .83 and .72 respectively (Barnard,1983). The alpha coefficients on the subscales are presented in Table 2.0. The NCAFS instrument has been tested for concurrent, construct and predictive validity (Barnard, 1983). The concurrent validity of the NCAFS instrument was obtained by administering it to subjects in conjunction with two other related scales, the Nursing Child Assessment Teaching Scale and the Home Observation for Measurement of the Environment Scale. There was a strong relationship between the scores obtained on the NCAFS and related measures of mother-infant interaction and stimulation scores obtained on the Home Observation for Measurement of the Environment Scale.

To establish construct validity of the NCAFS instrument, Barnard's research group carried out a comparison on two groups of infants who were known to be different from each other. One group was made up of infants born prematurely, the other group was composed of infants born at term. The two groups showed significant differences. Barnard (1983) suggests that these findings indicate that the feeding scale is sensitive to differences among infants who have different developmental prospects.

Factor analysis was carried out in the NCAFS tool for subjects aged one to twelve months. For nearly all factors, items were drawn from more than one of the six subscales with several factors containing items from both the infant and mother sub-scales. This finding indicates that the factors are tapping aspects of contingent responding between the mother and infant (Barnard, 1983). In this study, the NCAFS tool was used to record

mother- infant interaction on one occasion only; therefore predictive validity was not an issue.

Table 2

Reliability of the Subscales of the NCAFS Instrument

NCAFS Subscales	Reliability Coefficients	
	Parent	Infant
Sensitivity to cues	.60	
Response to distress	.69	
Socio-emotional growth fostering	.63	
Cognitive growth fostering	.69	
Clarity of cues		.56
Responsiveness to parent		.58

Barnard,K. (1983). Measurement: Validity. *American Journal of Maternal-Child Nursing, 7*, 1965.

Norbeck Social Support Questionnaire

The NSSQ was chosen for several reasons: reported reliability and validity, previous utilization in an adolescent population, ease of administration and completion and measurement of perception of support available. The NSSQ measures general support rather than situation specific support, and it is based on rating of actual network members rather than global reactions to questions. The NSSQ measures three major components of social support: functional support, network properties, and support loss. The functional support component includes the subscales of affect support, affirmation support and aid support. The network component includes the subscales of number of members in the network, duration of relationships with network members, and the frequency of contact with network members. The total loss component includes the subscales of loss (yes or no), number of persons lost from each network category, and amount of functional support lost during the past year. The total emotional component includes the subscales of affect support and affirmation support.

There are two questions on the NSSQ measure for each of the functional properties of support. Three questions measure the network properties of size (number listed in the network), stability (duration of relationships), and availability of the convoy (frequency of contact). The individual's network changes over time thus three questions on the NSSQ measure recent losses of important relationships.

The first page of the NSSQ includes a list of categories of persons who may be considered supportive or who are important to the individual such as spouse or partner, family members or relatives, friends, work or school associates, counsellor, health care providers or others. The subjects can list up to 24 network members. In scoring the

NSSQ, nine source of support categories are utilized to identify the relationship of each network member listed. The categories were modified slightly for analysis so as to represent the relevant social network categories listed by the adolescent mothers. The sources of support investigated were total family, which was further broken down into relatives, siblings, and mother; friends, spouse/partner, work/school associates, neighbors, minister, and health care provider .

Subjects then cite each network member listed on the amount of affect, affirmation, and aid support provided using a five-point Likert scale: Not at all--1; A little--2; Moderately--3; Quite a bit--4; A great deal--5. Subjects then rate how long they have known each network member and how frequently they have had contact with each network member. If loss of a network members has occurred during the past year, the subject lists the number of persons lost from each support category and rates the overall support lost using a five-point Likert scale.

For each of the first eight questions, the subject's ratings for each network member on a given question are added to determine the score for that question. The number in the network is determined by the number of individuals listed by the subject on the network list. Question 9, "recent losses of important relationships" is scored as a "yes" or "no" response; the quantity of losses is determined by the number of categories checked by the subject; the quality of losses is scored directly from the rating made by the subject on the five-point rating scale.

Reliability and validity for the NSSQ has been established in a wide population. The test-retest correlation coefficient in a normative sample of college students (for a seven-month interval) were reported by Norbeck as follows: affect $r = .78$, affirmation $r = .78$, and aid $r = .58$, total functional variable $r = .76$, number in network $r = .75$, duration of

relationship $r = .75$, frequency of contact $r = .68$ and total network variable $r = .73$ (Norbeck, Lindsey, & Carrier, 1981). These correlations represent a moderately high degree of stability over time (all r's significant at the .001 level). Pearson correlation coefficients of internal consistency were reported as follows: total functional support .85 to .97, total network variable .88 to .96 and total loss variable .24 to .68 (Norbeck et al., 1981). Evidence of concurrent validity demonstrated medium levels of association ($r=.35$ to .41).

Data Collection

Data was collected at two time intervals for each study subject. The first time frame for collection of data was during an introductory session on the second postpartum day. At this time the researcher explained the purpose and procedures of the study and informed the subject of how confidentiality of data would be maintained. It was made clear that there were no risks to her or her infant in participating in the study and that she was free to withdraw from the study at any time should she so desire.

Upon agreement to participate the mother was asked to sign an informed consent form (Appendix 3) and to complete a biographical data form (Appendix4). A copy of the signed consent form was given to each subject. A telephone number and address were obtained so arrangements could be made for the home visit.

Three weeks following discharge of mother and infant from the hospital the mother was called to arrange an appointment for the home visit. The visit was scheduled as best as possible to meet the conveniences of each mother. Several days prior to the observation the mother was called to confirm the appointment.

A home visit was made between the beginning of the sixth and the end of the seventh week following discharge of the mother and infant from the hospital. The first postpartum month is particularly trying for first-time mothers who are making many readjustments in the transition to parenthood. Multiple tasks face the new mother during this postpartum period (Mercer,1986). The six to seven week time frame provided a period for the mother to recuperate from the birth process, to learn to meet her infant's needs, and to identify and place her infant within her life.

During the home visit the mother was asked to complete the NSSQ. Also during the home visit, the mother-infant interaction was observed by the investigator, using the Nursing Child Assessment Feeding Scale (NCAFS) developed by Barnard (1978) at the University of Washington. The investigator arrived at the mother's home approximately twenty minutes prior to the scheduled feeding. The mother and infant were observed by the investigator during a regular feeding time. The observation was introduced as follows: "When you think X is ready to eat, please go ahead. Just feed him/her as you usually would if I weren't here. I won't talk to you during this time because I don't want to interfere. When you are finished feeding, please let me know."

Following the observation the mother was thanked and the observations were scored and enclosed in an envelope. The mother was asked if she would like to discuss the scale and the observation of the feeding interaction.

The investigator was trained in the use of the Nursing Child Assessment Feeding Scale by an instructor certified by the Nursing Child Assessment Satellite Training Center at the University of Washington using standardized training films and home visits. Prior to data collection for this study, the investigator and another trained observer reestablished

reliability in the NCAFS by making visits to five mothers with infants. The trained observer and the investigator achieved at least 85% interrater reliability on their observations of maternal-infant interaction using item by item agreement and .87 using Kappa correlational statistic (Hunt, 1986). Kappa provides corrections for chance agreements (Hartman & Garner, 1981).

Data Analysis

Characteristics of mothers and infants were examined using descriptive statistics. Mean scores were calculated for the maternal subscore, infant subscore and the total score (maternal-infant) of the NCAFS. The maternal subscore was obtained by adding together the subscales: sensitivity to infant's cues, response to infant's distress, socio-emotional growth fostering, and cognitive growth fostering. The infant subscore was obtained by adding together the subscales clarity of cues and responsiveness to parent. The total score was obtained by summing the individual items marked yes for all the subscales.

The types of social support measured in this study were affect support, affirm support, and aid support. Several methods were used in this study to calculate social support scores. First, subscale scores were computed for each of the social support subscales affect, affirm, and aid . For example, the affect subscale score was calculated by adding the Likert ratings for each network member on the two affect questions of the NSSQ. Second, two composite support scores were computed; a functional support score was calculated from the sum of the affect, affirm, and aid subscales and the emotional support score was based on the sum of the affect and affirm subscales. For the purpose of conceptual clarity affect support and affirm support are identified in the general social support literature as emotional support. Aid support is referred to as instrumental support in the social support literature.

In preliminary analysis Pearson product-moment correlations were computed for subscales on the NSSQ (Appendix 5). In addition, Pearson correlations between social support subscales scores and the maternal subscore, infant subscore, and maternal-infant interaction scores were computed (Appendix 6). The results of the analysis indicated high intercorrelations between each of the social support subscale scores and a high correlation with the size of the network as well as with the NCAFS scores.

To correct for the confounding of network size and social support, average social support subscale scores (i.e. average affect, average affirm, and average aid) were utilized in further zero-order correlations. Average social support subscale scores were computed for the support subscales : affect, affirm, and aid. For example, the average affect subscale score was calculated by dividing the affect subscale score by the size of the network reported for that subscale. This average social support subscale score provides a score which is representative of the quality of support and controls for the size of the social network; it is not a mean score for the sample. Average social support subscale scores were utilized since this score corrects for the size of the network thus providing a score that was not an artifact of the number listed in the network (Norbeck,1988). This correction allows for a clearer discussion of the relationship between the quality of support and maternal-infant interaction. In addition, partial correlations were used to examine the relationship between each average social support subscale score and the NCAFS scores holding the size of the network constant. The rationale for computing the partial correlations was to determine if the quality of social support received made an independent contribution to the quality of the maternal-infant interaction, over and above the contribution of the network size.

To better understand the total social network size and the type of support both means and standard deviations were calculated for each NSSQ subscale. To reflect the relative contribution of each social network member who provides the most social support the percentage of functional and emotional support.were calculated To examine which network member provided the most contact, percentages were calculated for each network member.

The statistical procedures were completed using the SPSSx statistical program with the significance level set at .01. A one-tailed test was chosen since the investigator believed that high levels of social support would be related to optimal maternal-infant interaction. A one tailed test was selected recognizing the increased risk of committing a Type 1 error (Smith & Glauss, 1987) and the risk of possible extreme statistical values in the other tail of the curve being overlooked and information needed to modify the existing conceptual framework not being obtained.

CHAPTER 4

FINDINGS

This chapter begins with a description of the mothers and infants in the study. Next the general findings of the study are outlined.

Description of the Sample

The 30 mothers in this study were first time mothers, all of whom resided in Calgary. The majority (n=14) of mothers were either living with their families or their spouse/partner (n=12). Three mothers were living alone and one mother was residing with a friend. The subjects were all Canadian and Caucasian except for two mothers who were black and two mothers who were native. Twenty-four of the mothers were single and six mothers were married. The mean age for the mothers was 18.4 years and the mothers averaged 11.2 years of education (Table 3). The mothers' income was between $10,000- $19,000 a year. Fifty-three percent (n=16) of the mothers had taken babysitting courses and ninety percent (n=27) had cared for young infants previously.

There were 17 male infants and 13 female infants in the sample. Twenty-six of the 30 infants were born vaginally. The infants were healthy babies with a mean gestational age of 39.2 weeks and a mean birth weight of 3441 grams.

Table 3

Range, Mean, and Standard Deviation for Maternal Age and Education

	Range	Mean	Standard Deviation
		M	S.D.
Maternal age (years)	17-19	18.4	.675
Education (years)	9 -12	11.2	.961

General Findings

The findings of the study will be outlined beginning with a comparison of the NCAFS scores of the adolescent mother's in this study to the University of Washington normative data on adolescent mothers. Then the findings related to each research question will be presented. Additional findings related to social support and maternal-infant interaction according to the adolescent mothers living arrangements will be briefly addressed.

Comparison of Maternal-Infant Interaction Scores to "Normative Data" for Adolescents

The Nursing Child Assessment Feeding Scale (NCAFS) used to measure responsiveness in mother-infant interaction provides a total score as well as subscores for the mother and for the infant. For all the mother-infant dyads observed during the feeding episode in this study, the mean total score on the NCAFS was 60.83. In comparing the mean total score of the study sample and a normative adolescent sample, the mothers in this sample did not appear to differ from the normative sample (Table 4). To determine if the study sample was representative of an adolescent population a 95 per cent confidence interval was constructed. The confidence intervals were calculated to be (57.5,64.1) indicating that the mean total score of the study sample did fall within the parameters of the population.

Table 4

Comparison of the Study NCAFS Scores with Normative Scores:

NCAFS Score	Maternal-Infant Dyads			
	Study (n=30)		Normative* (n=160)	
	M	SD	M	SD
Sensitivity to Cues	11.9	(3.1)	13.5	(2.2)
Response to Distress	10.0	(1.9)	9.4	(1.9)
Socio-Emotional Growth Fostering	10.5	(2.5)	10.8	(2.6)
Cognitive Growth Fostering	6.3	(1.3)	5.1	(2.4)
MATERNAL SUBSCORE	38.8	(7.5)	38.4	(7.3)
Clarity of Cues	13.7	(1.0)	12.6	(1.8)
Responsiveness to Parent	8.2	(1.5)	7.1	(2.4)
INFANT SUBSCORE	21.9	(2.3)	19.8	(2.3)
TOTAL	60.8	(9.4)	58.3	(9.9)

*Source: Nursing Child Assessment Satellite Training (1988). Summary of NCAST Data Base for Teenage and Ethnic Samples: Descriptive Statistics and Sample Characteristics for NCAST Feeding Scales, NCAST Teaching Scales, and HOME Inventory. *University of Washington, School of Nursing,* Seattle, Washington

NCAFS Subscale Scores

Comparison of the study NCAFS subscale scores to the normative data from the University of Washington revealed similar scores (Table 4). Maternal and infant subscales of the NCAFS in this study were examined independently so that characteristics of the mother-infant dyad could be noted. The majority of mothers were sensitive to their infant's

cues with the exception of six mothers who scored below 56% on the sensitivity to infant's cues subscale. These mothers also scored low on the remaining maternal subscales although two of these mothers did score higher on the response to distress subscale. The mean for the subscale response to infant's distress was 10.0 with the highest score possible for this subscale being 11.0 indicating a substantial number of mothers were responsive to their infant. A number of the mothers responded to their infant's distress by rocking or talking to their baby.

For the subscales, socio-emotional and cognitive growth fostering one-fifth (n=6) of the mothers scored below 57%. A common observation made by the investigator was the mothers' lack of positive statements in talking to her infant during the feeding. More specifically, only 14 mothers praised some quality of their infant's behavior and only 12 mothers used positive statements in talking to their infant during the feeding. For a substantial number of mothers their verbalization to their infant was in response to their infant's crying or fussing.

The infants in the study were alert during the feeding session. The majority of infants (n=28) scored above 80% in the clarity of cues subscale. Ten infants of the sixteen mothers who scored less than 65% on the cognitive growth fostering subscale, also scored less than 65% on the responsiveness to parent subscale.

In comparing the total scores (maternal-infant) for the entire study sample it was found that eight mothers scored low (i.e.<55) and twenty-two mothers scored high (i.e.>55). The mean total scores for these two groups were 48 and 65.5 respectively. The total score of less than 55 on two observations has been identified by the NCAST Centre as a score to be viewed with concern, suggesting follow up visits to the dyad (Johnson-Crowley, & Sumner, 1987).

Research Questions and Findings

Who comprises the social network of the adolescent mother?

The source of support category reported by the greatest number of subjects was the total family category (100%). Both the mother and the category of friends were reported by 86.6% of the subjects (Table 5) as sources of support. The total family comprised 60.2% of the total number of persons listed in the mothers' network and the friends comprised 31.5% of the mothers' network. The family and friends accounted for 91.7% of the total number of individuals within the mothers' network. In contrast approximately 94.4% of subjects did not list anyone in the category of health care providers. Work or school associates were listed by six adolescent mothers. Only two mothers listed neighbors within their network.

The size of the mothers' social network varied from as many as twenty to as little as 3 network members, with a mean of 9.5 and a standard deviation of 4.5. The mean scores in Table 5 reflect the number of persons in each source of support category in the mothers' social network. The highest mean number of persons listed in the social network was for the total family category; the second highest was for the friend category. When the total family category was broken down into relative, sibling, and mother; the highest mean number of persons listed in the network was for the friend category and the second highest was for the relative category. Several adolescent mothers listed as many as 13 friends or 19 family members in their network.

Other than family members, the duration of relationships with other members in the adolescent mothers' social network was 2-5 years. The total family followed by friends accounted for the most contact with the adolescent mother and the infant (Table 6).

However, the family and friend source of support categories are reflective of a number of network members in contrast to the maternal grandmother or partner.

Table 5

Mean and Range of Social Network Members For Each Source of Support Category and Percentage of Subjects Listing Each Source in Network List

Source of support	Range of Social Network Members Listed	M	% of subjects listing source in network
Friends	0-13	3.36	86.6%
Relatives [a]	0-10	2.50	83.3%
Siblings	0-4	1.56	83.3%
Mother	0-1	.86	86.6%
Spouse/Partner	0-1	.80	80.0%
Work/School Assoc	0-1	.30	20.0%
Neighbors	0-1	.06	6.6%
Minister	0-1	.03	3.3%
Health Care Provider	0-1	.06	6.6%
Total Family [b]	1-19	5.2	100.0%

a. Relatives other than siblings and mother.

b. Includes relatives, siblings, and mother.

Table 6

Percent of Each Source of Support Category Listed in Total Network and Frequency of Contact

Source of Support Category	Percent of Total #Listed in Network	Percent of Total Frequency of Contact
Friends	31.5%	33.6%
Relatives [a]	31.5%	25.5%
Siblings	18.1%	16.3%
Mother	10.6%	9.9%
Spouse/Partner	9.8%	9.9%
Work/School Assoc	2.8%	3.0%
Neighbors	0.6%	0.7%
Minister	0.2%	0.3%
Health Care Provider	0.6%	0.4%
Total Family [b]	60.2%	51.7%

a. Relatives other than siblings and mother.

b. Includes relatives, siblings, and mother.

What social support does the adolescent mother perceive available?

The range of scores, means,and standard deviations for the social support subscales and composite variables are presented in Table 7. These scores represent the sum of ratings on each question for each social support subscale for the entire network list.

The composite scores: functional support and emotional support were examined to determine which network member provided the most support. The percent of functional support (i.e. affect, affirm, and aid) and emotional support (i.e. affect and affirm) given by each source of support category was calculated. The total family followed by friends accounted for the most of the functional support, 51.6% and 34.2% respectively (Table 8). Similar results applied to emotional support with the total family accounting for 51.2% and the friends accounting for 34.5% of the emotional support provided to the adolescent mother. In reading results it must be remembered that the scores for the categories "mother" and "partner" are based on a rating of one person as opposed to potentially several persons in the friends or siblings categories.

Table 7

Range of Scores, Means and Standard Deviations for Social Support Subscales

Variable	Range	M	S. D.
Affect [a]	24-140	8.5	31.7
Affirm [a]	20-144	56.6	29.5
Aid [a]	22-124	48.7	24.0
Total Function [a]	66-390	163.9	83.6
Total Emotion [a]	44-260	115.1	60.3

a) Based on sum of ratings for each network member on a 5 pt. scale ranging from 0-not at all to 5-a great deal

Table 8

Each Source of Support Category Listed in Network and Percent of Functional and Emotional Support

Source of Support Category	Percent of Functional Support	Percent of Emotional Support
Friends	34.23%	34.54%
Relatives [a]	26.62%	26.32%
Siblings	14.46%	15.23%
Mother	10.48%	9.63%
Spouse/Partner	10.99%	10.56%
Work/School Assoc	1.91%	2.25%
Neighbors	0.54%	0.51%
Minister	0.34%	0.40%
Health Care Provider	0.38%	0.51%
TOTAL	99.95%	99.98%
Total Family [b]	51.56%	51.19%

a Relatives other than siblings and mother.

b Includes relatives, siblings, and mother.

To determine the quality of support, average scores for individual network members were calculated by dividing scores of a subscale by the number in the network, this score controls for the size of the network. The average functional support and average emotional support scores provide a clearer picture of the percentage of support provided by individual members. When the percentage of average functional support scores and average emotional support scores were calculated for each source support category, the total family followed by the spouse accounted for the most support. However when the average functional and average emotional support scores were examined for each separate category the spouse followed by the mother accounted for the most support (Table 9).

An interesting pattern emerged when comparing the average social support subscale scores for adolescent mothers living alone (n=3), living with their partner or spouse (n=12), or living with their family (n=14). Those mothers living with their partner or spouse had slightly higher average support scores than mothers residing with their family (Figure 2).

To further examine the average scores and to facilitate comparison with the NSSQ, the average scores were divided by 2 so as to correct for the number of questions in each subscale to provide a Likert rating. For example, if the mean affect score (58.5) were divided by the mean number of network members (9.5), the average score of 6.1 can be derived. This score is than divided by 2 to correct for the number of questions for the subscale, and an average rating of 3.02 is derived. The Likert ratings were affect, 3.02 (moderate); affirm, 2.95 (a little to moderate); and aid, 2.55 (a little to moderate).

Table 9

Percent of Average Functional and Emotional Support Provided by Members of Social Network

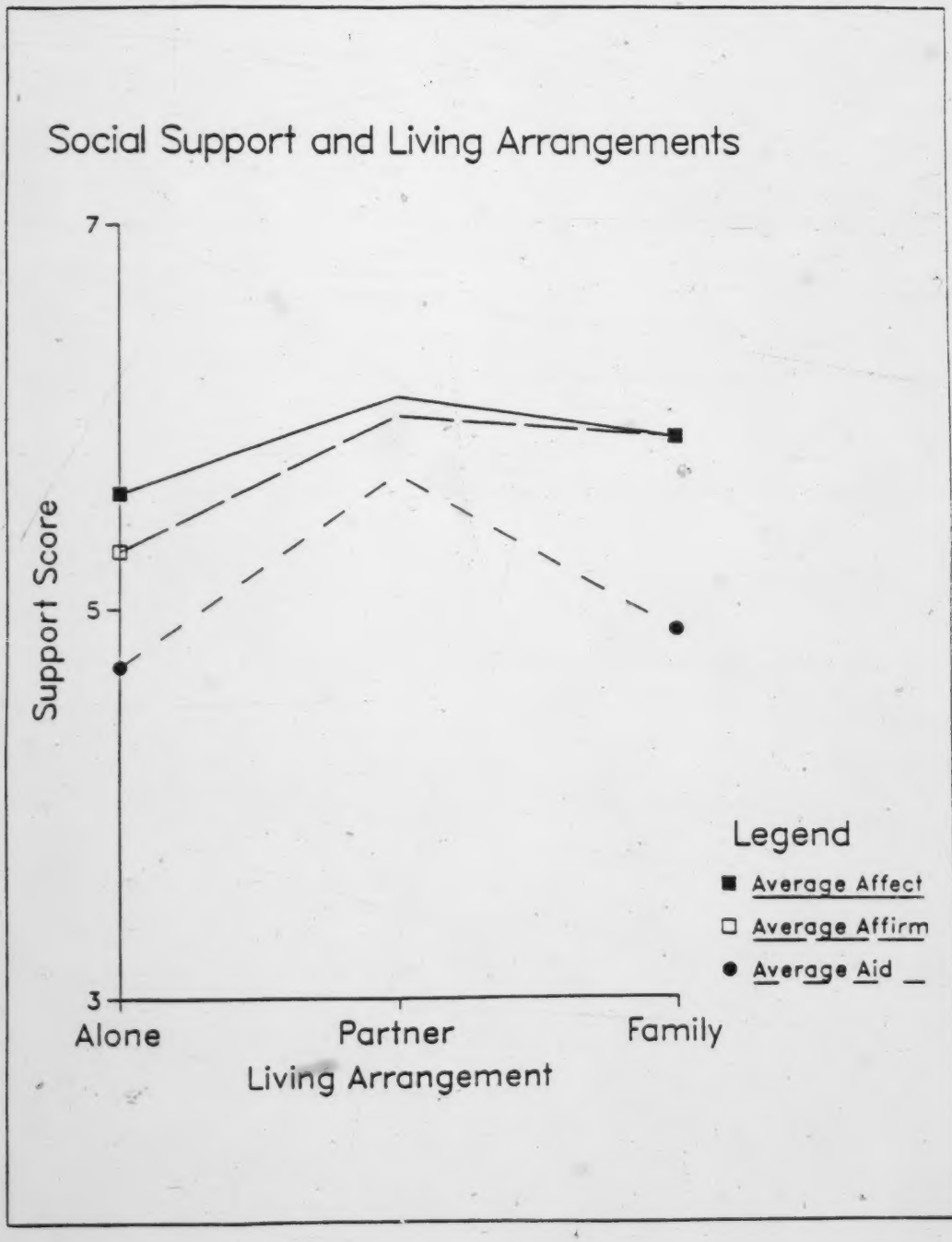
Source of Support Category	Average Functional Support	Average Emotional Support
1. Friends	17.39%	17.75%
2. Relatives [a]	18.49%	17.73%
3. Siblings	15.49%	16.50%
4. Mother	21.06%	19.86%
5. Spouse/Partner	22.08%	21.76%
6. Work/School Assoc	2.89%	3.40%
7. Neighbors	1.10%	1.07%
8. Minister	0.69%	0.83%
9. Health Care Provider	0.77%	1.07%
TOTAL	99.96%	99.97%
Total Family [b]	55.04%	54.09%

a. Relatives other than siblings and mother.

b. Includes relatives, siblings, and mother.

Figure 2

Average Social Support Scores and Living Arrangements



What is the relationship between social support and maternal-infant interaction?

As discussed in chapter 3 results of preliminary analysis indicated high intercorrelations between the size of the social network and each social support subscale (Appendix 5). Significant correlations were also found between each of the social support subscale scores and the maternal scores of the NCAFS. In addition the affect and affirm subscale scores were significantly correlated with the maternal-infant interaction scores (Appendix 6). Since each of the social support subscale scores are an artifact of the size of the network (Norbeck,1984; personal communication- Norbeck,1989), the size of the correlations between the social support subscale scores and the NCAFS scores could be inflated because of a confounding variable-- the size of the social network. To control for the size of the network average social support subscale scores (i.e. average affect, average affirm, and average aid) were utilized in further Pearson Correlation computations.

There were no significant correlations between the size of the network and each average social support subscale score (Table 10). The average aid subscale score was negatively associated with the size of the network, however the correlation was not significant. There were moderate correlations between the average affect subscale score and the average affirm subscale score (r=.53; p=.002; 1-tailed), the average affect subscale score and the average aid subscale score (r=.39; p=.01; 1-tailed), and the average affirm subscale score and the average aid subscale score (r=.51; p=.004; 1-tailed); suggesting that affirm and affect may not be distinct.

There were significant correlations of the average affect subscale score and the average affirm subscale score with the NCAFS scores (Table 11) The average affect subscale score was significantly correlated to maternal subscore (r=.45; p=.006; 1-tailed), infant subscore (r=.43; p=.009; 1-tailed) and the total score (r=.46; p=.005; 1-tailed) of the NCAFS.

These results indicate that the quality of affect support provided may be important to optimal interaction between the mother and infant. A comparison of NCAFS scores with the average functional scores and the average emotional scores, indicated significant correlations between the average emotional support score and the total NCAFS score, infant subscore, and the maternal subscore. There were no significant correlations between the average functional support score and the NCAFS scores. These findings demonstrated that a relationship, which was not merely an artifact of the influence of network size on support scores,existed between affective and affirmational support and the quality of maternal-infant interaction.

Table 10

Pearson Correlation of Average Social Support Subscale Scores and The Size of Network

	1.	2.	3.	4.
1. Size of Network		.12	.03	-.28
2. Average Affect			.53*	.39*
3. Average Affirm				.51*
4. Average Aid				

p<.01* one-tailed (N=30)

Table 11

Pearson Correlations of NCAFS Scores with Average Social Support Subscale Scores, the Size of the Network and the Average Composite Support Scores

NSSQ Scores	NCAFS Scores		
	Total	Infant	Mother
Average Affect	.46*	.43*	.45*
Average Affirm	.37*	.30	.37*
Average Aid	.06	.08	.06
Average Functional	.35	.32	.34
Average Emotional	.48*	.42*	.47*
Size of Network	.34	.17	.38*

Average Functional= includes affect subscale + affirm subscale + aid subscale

Average Emotional= includes affect subscale + affirm subscale

$p<.01$ one-tailed (N=30)

Partial correlations were computed between the average social support subscale scores and the maternal subscore, infant subscore and the total NCAFS scores, holding the size of the network constant (Table 12). These correlations were done to determine if the support scores "explained" any additional variance in the maternal-infant interaction scores over and above the variance "explained"by the size of network variable. Significant partial correlations were found between average affect scores (r=.45; p=.007; 1-tailed) and total NCAFS scores, the infant subscore (r=.40 ; p=.01; 1-tailed) and the maternal subscore (r=.43; p=.009; 1-tailed) Significant partial correlations were also found between the average affirm subscale score and the total NCAFS scores (r=.39; p=.01;1-tailed), and the average affirm subscale score and the maternal subscore (r=.39; p=.01;1-tailed). An encouraging and important finding was the similar pattern of significant correlations between the average affect and average affirm subscales with the NCAFS scores when controlling for the size of the network. This finding is consistent with a number of other studies that document the importance of the quality of emotional support to individual well-being (Israel,1982; Israel & Antonucci,1987; Cohen & Syme,1985). There were no significant partial correlations between the average aid subscale score and the total NCAFS score, infant subscore, and the maternal subscore of the NCAFS.

Table 12

Partial Correlation NCAFS with Average Social Support Subscale Scores Controlling For Size of Network

Average Support Scores	NCAFS Scores		
	Total	Infant	Mother
Average Affect	.45*	.41*	.43*
Average Affirm	.39*	.30	.39*
Average Aid	.18	.14	.19

p<.01 one-tailed (N=30)

What is the relationship between the size of the social network and maternal-infant interaction?

The results of the Pearson Correlations between the size of the mother's network and NCAFS scores indicate that the size of the network was positively associated with the maternal subscore of the NCAFS. When holding the size of the network constant in the partial correlations between the average social support subscale scores and the NCAFS scores significant correlations were found between the average affect subscale score and all the NCAFS scores. Significant correlations were also found between the average affirm subscale score and the maternal subscore and the total NCAFS score. To determine if the size of the network plays an important role correlations between the size of the network and the interaction scores while partialling out the support scores would need to be performed.

These results give credence to other social support researchers who suggest that perhaps the size of the network may be considered important insofar as their affect on the quality and availability of social support (Rook & Dooley,1985; Roberts,1988; Cohen & Syme,1985).

Additional Findings

The findings related to each research question posed for the study lead the investigator to further question the influence of the composition of the social network and the support provided by each network member on maternal-infant interaction. One further test of the robustness of the relationship between social support and maternal-infant interaction was performed. I explored whether the relationship existed when the living arrangements of the mothers was statistically controlled.

When comparing the mean total NCAFS score for each living arrangement subgroup, adolescent mothers living with their family had higher total NCAFS score (62.8) than mothers living with their partner (59.3), or mothers living alone (53.6). In comparing the mean average social support subscale scores for each subgroup, mothers living with their partner had slightly higher mean average subscale scores than mothers living with their family, or alone (Table 13). To examine whether there was a relationship between the average social support subscale scores and the NCAFS scores, Pearson correlations were performed for two of the living arrangements. Moderate correlations between the average affect and average affirm subscale scores and the NCAFS scores were found for those mothers living with their partner Significant correlations were found between the average affect subscale score and the maternal subscore and total NCAFS score for those mothers living with their family (Table 14). These findings strengthen the argument that the quality of social support is important to sensitive mothering.

Table 13

Average Social Support Subscale Scores and Total NCAFS Score According to Living Arrangements

Living Arrangement	Average Affect M	Average Affirm M	Average Aid M	NCAFS M
Alone (n=3)	5.6	5.3	4.7	53.6
Partner (n=12)	6.1	6.0	5.7	59.3
Family (n=14)	5.9	5.9	4.9	62.8

Table 14

Pearson Correlations Of Average Social Support Scores with NCAFS Scores for Mothers Living with Their Partner and Living with Their Family

Average Support Scores	NCAFS Scores		
	Total	Infant	Mother
Living with Partner (n=12)			
Average Affect	.37	.55	.30
Average Affirm	.41	.51	.36
Living with Family (n=14)			
Average Affect	.56*	.24	.60*
Average Affirm	.41	.16	.45

*p<.01

In this study it was found that the adolescent mother's social network included family, friends, and for a large number of mothers the presence of a partner. The size of the mother's network varied from three members to twenty members. The adolescent mother perceived her partner and her mother to be the primary sources of emotional support. The quality of this emotional support was positively associated with the maternal behavior and also with the infant behavior. More specifically, both affective and affirmational support were positively associated with the quality of maternal-infant interaction.

CHAPTER 5

SUMMARY, CONCLUSIONS, DISCUSSION, RECOMMENDATIONS AND IMPLICATIONS

Summary of the Study

In this study a systems framework was used to examine the relationship of two variables, social support, and size of social network, to maternal-infant interactions in an adolescent population. The mother and infant were viewed as open systems interactive with each other and the social network members within their environment. The mother's interactive behaviors were viewed as the mothers' ability to read, interpret, and respond appropriately to her infant's cues. The infant's interactive behaviors were viewed as the infants' ability to send clear cues to his /her mother and to respond appropriately to his mother. Maternal-infant interaction was observed in the mother's residence during a feeding time. The dyads interactive behavior was measured using the Nursing Child Assessment Feeding Scale (NCAFS). Maternal-infant interaction was assumed to be influenced by the social support provided by the mother's and infant's social network members. Observation of the mother and infant occurred at six to seven weeks.

Social support was defined as those social network members through which the components of social support (affect, affirm, and aid) were supplied. The Norbeck Social Support Questionnaire (NSSQ) was used to measure social support dimensions and the social network. The types of support measured were affect, affirm, and aid support. The format of the questionnaire is such that the overall measure of the three types of support was based on numbers of persons named; thus the size of the network was confounded with the assessment of the type of support. To elucidate the relationship between the

quality of social support and maternal-infant interaction, the size of the network was controlled by dividing each social support subscale by the size of the network for that subscale.

Sample

The final sample consisted of 30 first time adolescent mothers, 24 of whom were single and 6 who were married. The sample was comprised primarily of 18 and 19 year olds with only 3 mothers being 17 years of age. The infants were all healthy term infants. The small sample size, relative homogeneity of the sample, and the fact this was a non random sample limit the generalizability of the findings of this study. The research design was correlational thus caution should be used in assuming cause-effect relationships in the following conclusions and discussion of the findings.

Conclusions

The adolescent mother's social network was comprised primarily of immediate and extended family, although friends and their partner were listed by a substantial percentage of mothers. For a majority of the mothers, health care providers were not included within their social network. In general,the average ratings assigned by the mothers indicated that they perceived a moderate amount of emotional support (affect and affirm support) to be available but they perceived less availability of aid or instrumental support. The mother's partner and her own mother were primary sources for this emotional support. The size of the mother's network was related to maternal behavior; larger networks are associated with more optimal maternal behavior.

Emotional support does appear to be important to sensitive mothering. Both affirmational and affect support were associated with more optimal interaction regardless of

the size of the mother's network. This finding suggests that adolescent mothers who felt cared about, loved, and supported in their behaviors were able to provide more sensitive and nuturant maternal behavior. Affective support was also associated with infant responsiveness, possibly indicating that this type of support influenced the mothers' ability to be sensitive to the infant's cues. An alternative explanation of the significant association between affective support and infant behavior would be that the social network may have a direct influence on the infant. If the infant interacts with other adults who are warm and sensitive (as represented by the mother's report of social support to her), and who provide a broader base of stimulation and interaction then the infant might be more responsive to those persons interacting with them.

Discussion

This section begins with a discussion of the first research question :Who comprises the adolescent mothers' social network? Next the key findings are discussed under the remaining research questions. Finally, the interaction patterns of the adolescent mother-infant dyad are discussed.

Who comprises the social network of the adolescent mother?

A prevalent belief is that adolescent mother's particularly single mothers, are socially isolated, with few people to turn to for support in their mothering role (D'Ercole,1988; Norbeck & Tilden,1987). For this sample of teen mothers it does not appear that they were socially isolated from friends and family during the early postpartum period. The mothers in this study were visited six to seven weeks postpartum, a period when social support is often more available. The amount of social support available has been documented as decreasing at approximately 3 to 6 months following the birth of a child (Mercer,1986).

An immediate question that needs to be considered is: What constitutes a sufficient number of network members? An equally important issue is that having a large social network does not necessarily assure that social support will be forthcoming both in a positive manner and of the needed type or amount of support.

As in other research (Colletta, 1981; Scheslinger,1986) the mother's partner, mother, and friends were listed in the adolescent mother's social network. The partner and the maternal grandmother were listed most frequently, a finding which has been documented in other adolescent studies (Colletta,1981; Mercer,1980; Lederman,1984). This is not surprising since 46.6% (n=14) of the mothers were living with their family. All the subjects listed at least one family member in their network, and several mothers reported as many as 13 family members, which included the extended family. The presence of friends was not unexpected, and may have reflected a normal developmental process of teen mothers to maintain their peer relationships. The lack of health care providers in the adolescent's network was not unexpected; many mothers may not perceive the need for support from persons other than those individuals to whom they are close. Zuckerman (1979) also reported that adolescent mothers tend to turn to their mothers for support rather than health professionals. Within the present health care system there is a lack of concentration on the early postpartum period as a critical period in the transition to motherhood, thus the role of health care providers may not be as visible.

The social networks of adolescent mothers have been described as being limited in size and lacking stability (Carlson, Kaiser, & Yeaworth,1984). These characteristics were not evident in this sample of adolescent mothers. The mean number of persons in the mother's social network was nine, and 30% (n=10) of the mothers listed more than 10 persons in their network. One measurement of network stability is the length of time the individual

has known her network members. A majority of the subjects had known network members for four to five years.

What social support does the adolescent mother perceive to be available?

Data about the effect of becoming a parent on network ties and the type of support available and needed for new parents are scarce. However,initial evidence however does support the notion that having a baby does change relationships outside the nuclear family (Cronwett,1985; Pridham, Egan, Chang,& Hansen,1986). Access to social support from the parent's social network has been documented as having both positive effect on physical and psychological outcomes of pregnancy (Norbeck & Tilden,1983; Nuckolls, Cassel, & Kaplan, 1972), the psychological outcomes of the postpartum period (Cronwett,1985), and more sensitive parenting (Crnic et al, 1983; Colletta,1981).

Clearly, for this sample, the mother, relatives, and siblings were a major source of functional support. It was not surprising that the composite functional support score indicated that a substantial percentage of support was provided by the family and friends when the source of support categories were examined collectively as groups. This score is a summative score of the mother's rating of each member of the social network on each item of the affect, affirm, and aid subscales. When the size of the network was taken into account by computing average social support subscale scores, the spouse/partner and the maternal grandmother accounted for a greater percentage of emotional support. This finding converges with the findings of other adolescent studies (Majewski,1987; Mercer,1986; Parke, Power & Fisher,1980; Thompson,1986),which suggest that the adolescent's partner and mother's mother are the primary sources of emotional support. In this study, the provision of emotional support was found to be more important than the provision of aid support to the reciprocal interaction of the adolescent mother and infant.

Similar positive effects of emotional support are reported both in the parenting literature (Crnic et al, 1983; Harrison, 1988; Pridham et al,1986) and in the general social support literature (Norbeck & Scheiner,1982; Popiel & Susskind,1985; Elwell & Crannell-Maltibie,1981). In fact a number of researchers have also suggested that emotional support is more important than instrumental support (aid support) in influencing individual well-being (Israel,1982; Israel & Antonucci,1987; Elwell & Cranell-Maltbie,1981).

Although a smaller proportion of siblings than friends were listed by mothers, it was noteworthy that the functional support provided by siblings closely resembled that of friends. Friends may not be seen as equally supportive, because they no longer shared commonalties with the mother or because they may have reminded the adolescent mothers of those activities that they could not be a part of presently. The lower ratings may be a reflection of the questions measuring aid; as mentioned previously the aid questions address the resources or attributes of the social network member (See Appendix 1 Norbeck Social Support Questionnaire). For example, if the siblings are younger than the adolescent mother, then they might be unable to provide financially; however, they might be able to demonstrate warmth and caring.

Abernathy (1973) noted that women assume the maternal role with greater ease if the support persons are acquainted and see each other regularly, because information and help are less likely to be conflictual. Within a loose network, network members do not know or interact with each other, thus the mother might need to deal with many conflicting opinions about childrearing. The subjects had frequent contact with their network members, meeting with friends weekly, seeing immediate family on a daily to weekly basis, and being with their spouse or partner on a daily basis. Data were not collected as to the degree of closeness or contact between network members, so it is not known whether contact

occurred between family and the mother's friends or whether the network members had a mutual awareness of the others' support.

Barrera (1981), in his study of pregnant adolescents found that the mother's major source of support was also a major source of strain. The research instrument used in my study to measure social support does not directly measure a non-supportive network or conflict within the network. Some degree of conflict may be indicated in the finding of a small negative correlation between the average aid scores and the size of the network, indicating the larger the network the less aid support. Several other plausible reasons exist for this finding. Friends and siblings who comprise a substantial proportion of the social network may not have the resources to provide for the mother. Also a number of mothers lived with their families whose social condition may not enable them to provide the support suggested in the aid questions; thus the negative correlation may not be a result of the size of the network or conflict between the members, but may be the result of the individual attributes of the network member. Lastly, the undertone of the questions that measure aid more directly involve the social skills of the mother to actively seek support. Crawford, (1984) in reexamining Mercer's study on predictors of role attainment, found that as the size of the network increased the number of relationships between support and role attainment decreased.

What is the relationship between social support and maternal-infant interaction?

An increasing number of parenting studies indicate that positive maternal behaviors are related to the existence of a supportive social network (Colletta, 1981; Mercer, 1980; Crnic et al, 1985; Ventura, 1988; Harrison, 1988). More specifically the more recent literature suggests that specifically emotional support from family members (Colletta,1981; Mercer,1986) or the mother's partner is associated with responsive mothering.

In the present study, correlational analyses indicated that emotional support--more specifically, affect and affirm subscale scores corrected for the size of the network were significantly and positively associated with both the maternal subscore and the total score of the NCAFS scores. An unexpected finding was the significant modest correlation between average affect subscale score and the infant subscore. Although these findings do not indicate the source of support, the results do corroborate other findings about the importance of emotional support for sensitive maternal-infant interaction (Crnic et al, 1983; Harrison, 1988).

Crnic's (1983) study predicted a positive relationship between support from the spouse or partner and infant behavior in interaction. In Crnic's study, support from the mother's partner significantly predicted both the infant's responsiveness to the mother and the infant's affect in interactions. In addition, they found that support from the partner predicted responsive maternal behavior in interactions. Crnic and colleagues contend that the effect of spousal support for the infant was indirect; that is support from the spouse enhances the mothers' ability to be sensitive and responsive with her infant, thereby encouraging the infant to be alert and responsive. An alternative explanation of this finding would be the existence of a direct effect of the provision of emotional support from the infant's social network on the infant's responsive behavior.

These findings lend some degree of support to the argument that the adolescent's capacity for relating to other persons and obtaining emotional support from them is important to sensitive mothering (Aten,1988; Whitman et al,1987). Without support, adolescent mothers may be unable to either share ambivalent feelings, to receive reinforcement for parenting, or lack encouragement for their own self-esteem (Mercer,1986). When embedded in a supportive social environment, the mothers are likely

to receive sufficient encouragement and reinforcement (Cronwett,1980) to provide them with the emotional resources to enable them to discharge their maternal role in a sensitive manner (Stewart,1989). It is not known from the results of my study how emotional support is linked to maternal-infant interaction. Returning to the theoretical premise of the NSSQ and the conceptual framework for the study, it can be suggested that social network members may have been helpful as role models; may have allowed mothers to vent their feelings about mothering or may have provided positive feedback that increased self esteem and enabled them to be nuturant. The theoretical premise of the general systems framework would also support the argument that the infant's social network may have a direct effect on the infant's behavior. Kennedy (1973) suggests that a mother who feels good about herself and is enmeshed in a supportive network is likely to trust her own abilities and trust others, including her infant's response to her. Mercer (1986), in her study of mothers 15 years to 40 years of age found a significant association between self concept and maternal behaviors and proposed that if a mother has a low opinion of herself, this low self esteem interferes with her ability to interact with and care for her infant. Perhaps the caring, love, and affirmation of behavior available from the mother's network members enhanced the mother's self-esteem and her ability to be sensitive and nuturing.

What is the relationship between the social network and maternal-infant interaction ?

Researchers investigating the relationship between social support and maternal-infant interaction have primarily focused on the functional components (i.e. emotional support-affect and affirm; informational support, and instrumental support-aid) and interactional (i.e. source of support and frequency of interaction) components of the social network, thus making comparison of the structural elements (i.e. size of the network) limited. The structural component examined in this study was the size of the network. Descriptive data

pertaining to the frequency of interactions and the stability of the relationships with the other network members were collected. However only the relationship between the size of the network and maternal-infant interaction was examined. A finding in my study was a positive moderate correlation between the size of the network and the maternal behavior of the mother. Several researchers have documented the positive effects of larger network (Richard & Kagan,1979; Boyce, 1985) to individual functioning, however this suggestion is mentioned in the context of the type of social support that can be provided. Richard & Kagan (1979) examined the size, density, and the type of support provided by each of the social network members for 40 primiparous couples who had children 4 to 7 months of age. Outcomes were found to be better when networks were larger and when the parents were offered more emotional and instrumental support. In contrast a number of social support studies document the ill-effects of a large social network. Mercer & Ferketich (1988) found that women with larger social networks during pregnancy reported more depression symptomology. Similarly, in the general literature the size of the network has been found to be positively associated with mortality (Berkman & Syme,1985) and depression (Schaefer, Coyne & Lazarus,1981).

In this study, the affective component of social support was more strongly related than the size of the network to more sensitive and responsive behavior of the mother and the responsive behavior of the infant. Significant correlations were found for both Pearson Correlations and partial correlations. As discussed previously, the zero order correlation between the average affect subscale score and the maternal subscore and total NCAFS scores were significant at the .01 level, $r=.45$ and $r=.46$ respectively. Also the average affect subscale score was positively associated with the infant subscore. Similarly, partial correlations controlling for the size of the network were significant. The average affect subscale score was positively associated with both the maternal subscore, the infant

subscore score, and the total NCAFS score. The average affirm subscale score was also positively associated with the maternal and total NCAFS score.

In summation, although the size of the social network was associated with more optimal interactive behaviors of the mother, further analysis controlling for the size of the network indicated that the quality of emotional support was associated with the maternal subscore, infant subscore and the combined behavior of the mother and infant. When the living arrangements were controlled, significant correlations were still found between the average affect subscale score,and the maternal subscore, and the total NCAFS score for those mothers living with their family.

The quality of emotional support does appear to be important to well-being throughout the life cycle. Boyce (1985) suggests that emotional support begins in infancy with the attachment that occurs between the parent and infant. The sensitive and responsive behaviors of parents towards their infant throughout infancy enhance the cognitive and socio-emotional development of the infant (Crockenberg, 1981; Bowlby,1952, Lieberman,1977). Basically it is argued that the experience of social support in these very early transactions is a template for subsequent social support exchange in childhood and adulthood. Evidence of the importance of emotional support is documented in the grief literature (Maddison & Walker,1969; Raphael,1977; Minkler,1985), the marital literature (Goldberg,1981;& Reibstein,1981) and the childbearing literature. Israel (1982) suggests many conflicting findings exist regarding the structural characteristics of the social network (i.e. size of the network). The strength of the findings regarding the types of social support that fall along the emotional dimensions of social support appear to be more significant predictors of health status (Israel.1982).

Parenting Style

The literature on adolescent parenting has described adolescent mothers as insensitive, non-responsive, punitive, and lacking in warmth and affectionate care-giving attributes (DeLissovoy,1973; Jones et al, 1980; Landy, Montgomery, Schubert, Cleland, & Clark, 1983). The results of this study indicate that a) many adolescent mothers do provide sensitive, responsive parenting and b) some adolescent mothers do have less sensitive interactions. A frequent behavior observed in this sample was the adolescent mother's persistence in offering food when the infant had clearly disengaged from the feeding interaction. This finding may reflect the mother's perception that being a "good mother" means making certain that your baby is well-fed or that feeding time is scheduled at a specific time and thus the baby must eat now. Whether this observed behavior is due to the mother's insensitivity to the infants' satiation cues or her desire to assure her infant is well fed is unclear.

Several commonly observed maternal behaviors found in this sample that converge with findings of other studies on adolescent maternal-infant interaction include: the lack of verbalization (Colletta,1981; Landy et al;1983), lack of praise either general or specific (Aten, 1987; Phillber & Graham, 1980), and lack of playful interactions (Becker,1987). Several possible reasons exist as to why a number of the mothers did not demonstrate the above behaviors. First, the mothers may view feeding as a task orientated activity rather than one which involves social interaction activities. Second, the mother may have limited knowledge of the way infants develop and therefore overlook the value of cognitive and socio-emotional growth fostering activities.

A strength of the mothers in this study was their immediate response to their infant's distress. The mothers responded by rocking, cuddling, or making sympathetic responses to the infant. Infant fussiness or crying during feeding is a commonly reported concern of first-time mothers (Mercer,1986; Ventura,1987). This immediacy of response may reflect this concern for the infant's behavior.

The feeding observation was limited to one observational time and one type of interaction and may not have been representative of the mother's general style of interaction. However, the feeding situation occupies a central position in early infancy, and though the type of feeding may change over time, the basic process of maternal involvement probably remains the same (Barnard,1987). Aten (1987) found in her study of adolescent mothers that this pattern of behavior was not isolated to a feeding situation but also in a teaching episode. In fact this behavior continued well into preschool years. A longitudinal study in which several different observations were made would provide information about the stability of the mother's style of interaction over time and in different situations.

The infant is a partner in this interactive process, sending cues to his/her mother and responding to her behavior. Although the infant at six to seven weeks of age does not have a large repertoire of behaviors he/she is able to contribute to this process. At a very early age the infant is capable of alerting the mother to his or her needs (Metzoff & Moore,1983; Brazelton,1979). The infants in the study were alert and provided clear hunger and satiation cues. As mentioned in the findings, a number of infants whose mothers scored low in cognitive growth fostering were not responsive to their parent. It would appear that the lack of responsive and stimulating activities by the mother may have resulted in the infant being less responsive. Simkins (1984) suggests that maternal

underinvolvement can lead to diminished responses on the part of the baby, which may in turn be associated with motor and cognitive development. Perhaps the lack of cognitive growth fostering behaviors of a number of mothers may be the result of their perception of their infant's capabilities (DeLissovoy,1973; Vukelick & Kliman, 1985). A beneficial adjunct to the study would have been to examine either the mother's perception of her infant's capabilities or the mother's knowledge of developmental milestones. Due to different observational methods, scores are difficult to compare across studies. However there does appear to be some consistency between the findings of this study and earlier investigators' results which indicate that adolescent mothers spend less time in social forms of interaction and lack vocalization (Field, 1980)

Maternal-Infant Interaction and Living Arrangements

When the mean total NCAFS score was examined for each living arrangement it was found that those mothers residing with their family had a higher total NCAFS score than those mothers living alone or living with their partner. Possibly those mothers embedded within the family are receiving information specific to parenting and infant behavior in addition to the emotional support. In contrast, Speiker (1989) found older adolescent mothers who lived with their family had lower Parent Teaching (Nursing Child Assessment Teaching Scale) scores compared to those mothers living alone or living with their partner. Unfortunately, Speiker does not directly measure social support; however, she does suggest the possibility of a non- supportive relationship between the family and the adolescent mother.

The birth of a child forces the reorganization of the family as a social system. Roles are reassigned and status positions are shifted. The family plays a major role incorporating the adolescent mother and infant by either role sharing, role blocking, or role binding

(Smith,1983). In role sharing the family shares in child care, whereas in role blocking the family interferes with the maternal role. In the role binding pattern the mother has total responsibility for the infant. Free (1989) in examining the relationship between these three family patterns and maternal-infant interaction found that adolescent mothers who were in a role binding pattern scored significantly higher on the Socio-Emotional Growth Fostering and Cognitive Growth Fostering subscales of the NCAFS. The role binding pattern demands that the mother have more contact with her baby therefore promoting her responsiveness to the infant's cues. Free suggests that role sharing and role blocking mothers need to be assertive in the care of their infant at home so that the mother develops awareness to her infant's cues. The family's perception of the meaning of this new addition may be one crucial factor in the mother's perception of the support available from her family and also the family's availability for their daughter and grandchild. With motherhood the need for support may be heightened. Supportive responses from mates, family, and friends may provide reinforcement for the mothering role and communicate confidence in the teen mother's ability to mother. Further research exploring the role status of the adolescent mother within the family would be advantageous in understanding the influence of the family on the maternal behavior of the adolescent mother.

Limitations

As the sample was not randomly selected, the results can be generalized only to similar populations. In addition, the relatively small sample size and limited age range of adolescent mothers in the sample limit generalizability of the findings. The correlational nature of the analysis means that no cause-effect relationship in the results of the study can be assumed. A final limitation was the type of research instruments. A self report questionnaire (NSSQ) and an observational method of data collection to measure maternal-

infant interaction were used to collect information on the variables to be examined in the study. Questionnaires are vulnerable to response bias and observational methods of data collection are subject to observer bias. Measures taken to control for the observer bias included the establishment of 95% interobserver reliability with a trained observer prior to data collection. Since observer agreement coefficients do not account for the probability of agreement due to chance Cohen Kappa coefficients were calculated and a .87 Kappa coefficient was obtained. The Kappa coefficient reflects observer agreement beyond that which would be expected by chance (Notarius & Markman, 1981).

Although this research has limitations, its findings are still encouraging. The findings indicate that the question of the relationship between social support and maternal-infant interaction is worth pursuing. If the relationship between emotional support and maternal-infant interaction are confirmed in future studies and if maternal behavior is indeed associated with the cognitive and socio-emotional development of the infant, then the how and the why of these associations should become clearer. Clarification of these associations would have obvious implications for educational programs designed to foster good parenting.

Recommendations for Future Research

The results from this study concur with other research findings that indicate emotional support from the social network may help the teen mother to be responsive in interaction. Future research needs to examine how emotional support assists the teen mother and which network members are perceived as most helpful in assisting them in parenting. Qualitative methodology that employs interviews with the subject might be beneficial in specifying the processes of how support is helpful to the mother and also would be useful in exploring how the mother perceives her relationship with her infant. If the development and use of

social support from significant others are central coping strategies that facilitate sensitive mothering, then investigators need to examine how adolescent mothers develop and maintain a supportive social network. Barthe (1988) argues that social skills play a role in the building and maintenance of a social network. He recommends that research on how mothers problem solve and approach conflict would provide information on how they build and maintain interactions with members of their social network.

Several issues related to measurement of social support have implications for future studies with adolescent mothers. The NSSQ measures general support rather than situation specific support, and for the teen mother the specific support related to parenting would be useful in understanding her parenting behavior. The high intercorrelation between the NSSQ items have implications for refinement of the NSSQ and the utilization of the tool in further investigations. Investigators utilizing the tool should examine the correlations between the NSSQ items prior to analysis, looking closer at the analysis possible and the sample size required for such analysis.

The present knowledge base of the interaction patterns of adolescent mother-infant dyads is very limited. One important area of fruitful research is documentation of the usual pattern of adolescent mother- early infant interactive behavior pattern from birth through early infancy. This study sample was limited to primarily 18 and 19 year old mothers. Few attempts have been made to compare interactions of younger and older adolescent with their infants, and to study these in relation to other social and cognitive characteristics of the mother.

Implications for Nursing Practice

Parenting is a complex process influenced by the forces emanating from within the parent, the child, and the social context. Nurses provide care to adolescent mothers in a variety of settings and are faced with a unique opportunity and challenge to assist young mothers as no other professions are. However, it was apparent in this study that health care professionals were not included in the support network of a number of teen mothers. It would seem that nurses during the early postpartum period need to examine their practice with these mothers for evidence of how their care may be alienating the new mother or explore the mother's perception of the nurse as a resource for her or increase the accessibility of support to the mother.

The partner and the maternal grandmother were perceived as providing a significant proportion of social support. The presence of specific network members has implications for the education that occurs with the mother while she is in hospital or in the community. The social network members should be invited to ask questions, share concerns, and express their feelings regarding the birth. Application of social network principles and social support to clinical practice begins with the assessment of the mother's social network. Assisting mothers to identify members of her social network and the type of support they feel they need would increase the nurse's ability to foster these relationships and promote successful parenting.

Given the fairly consistent finding that affective support is significantly related to health status and infant well-being (Israel,1982; Boyce, 1985,), parent education strategies need to be provided in a manner and atmosphere that is conducive to and encourages the development of interaction that provide feeling of caring and esteem. Both the providers of

support to the mother and the adolescent mother need to feel supported by health care professionals.

An obvious area for nurses both in hospital and the community to explore is the mother's perception of her infant's capabilities and the importance of interaction to her baby's well-being. This information can be shared in such a manner which provides the mother with positive feedback about her present maternal behavior but extends to include those maternal behaviors not currently used but which are important to her baby. The NCAFS instrument is an excellent tool, which can be used for assessment of interaction and for teaching purposes with parents. It has been shown that adolescent mothers are not providing environments that are conducive to cognitive growth fostering (Free,1989; Spieker,1989; Aten, 1987) or socio-emotional growth fostering (Akerson, 1989; Aten,1987) of their infants. Assessment and intervention that is directed in these areas will likely influence the quality of the environment provided to the infants of adolescent mothers.

The study of social support relates to the foci that guide nursing, specifically health, environment, and person (Stewart,1989). The clinical relevance of social support lies in nursing's concern with the client's interpersonal environment (Tilden,1985). Knowledge of the nature of social network and types of support available to adolescent mothers is the first step towards utilization of knowledge of social support in nursing practice. As clinicians responsible for helping adolescent mothers integrate parenthood into their lives, nurses need to understand how social networks and social support are related to maternal-infant interaction. By knowing who the mother perceives as being a source of support, the nurse could facilitate the interaction between the young mother and her social network members.

This knowledge base can provide a foundation for designing and testing nursing interventions to assist mothers in developing supportive social networks. Nurses are involved in many aspects of reproductive health care in a variety of health care settings and are currently the primary provider of childbirth and parent education programs. Clinical nursing interventions such as parenting education for the "supportive" social network members involved in caring for the infant and facilitating the development of social networks for adolescent mothers who are isolated from supportive others has the potential to enhance the parental competence and ease the transition to early parenting.

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Appendix 1

Norbeck Social Support Questionnaire

Number _____ (1-4)

Date _____

SOCIAL SUPPORT QUESTIONNAIRE

PLEASE READ ALL DIRECTIONS ON THIS PAGE BEFORE STARTING.

Please list each significant person in your life on the right. Consider all the persons who provide personal support for you or who are important to you.

Use only first names or initials, and then indicate the relationship, as in the following example:

Example:

	First Name or Initials	Relationship
1.	MARY. T.	FRIEND
2.	BOB	BROTHER
3.	M. T.	MOTHER
4.	SAM	FRIEND
5.	MRS. R.	NEIGHBOR

etc.

Use the following list to help you think of the people important to you, and list as many people as apply in your case.

- spouse or partner
- family members or relatives
- friends
- work or school associates
- neighbors
- health care providers
- counselor or therapist
- minister/priest/rabbi
- other

You do not have to use all 24 spaces. Use as many spaces as you have important persons in your life.

WHEN YOU HAVE FINISHED YOUR LIST, PLEASE TURN TO PAGE 2.

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University of California, San Francisco
Revised 1982

PERSONAL NETWORK

	First Name or Initials	Relationship
1.	_____	_____ (32)
2.	_____	_____ (33)
3.	_____	_____ (34)
4.	_____	_____ (35)
5.	_____	_____ (36)
6.	_____	_____ (37)
7.	_____	_____ (38)
8.	_____	_____ (39)
9.	_____	_____ (40)
10.	_____	_____ (41)
11.	_____	_____ (42)
12.	_____	_____ (43)
13.	_____	_____ (44)
14.	_____	_____ (45)
15.	_____	_____ (46)
16.	_____	_____ (47)
17.	_____	_____ (48)
18.	_____	_____ (49)
19.	_____	_____ (50)
20.	_____	_____ (51)
21.	_____	_____ (52)
22.	_____	_____ (53)
23.	_____	_____ (54)
24.	_____	_____ (55)

(5-6)

Number _____ (1-4)
Date _____

For each person you listed, please answer the following questions by writing in the number that applies.

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

PERSONAL NETWORK

First Name or Initials	Relationship	Question 1: How much does this person make you feel liked or loved?	Question 2: How much does this person make you feel respected or admired?
1. _____	_____ (22)	1. _____	1. _____
2. _____	_____ (23)	2. _____	2. _____
3. _____	_____ (24)	3. _____	3. _____
4. _____	_____ (25)	4. _____	4. _____
5. _____	_____ (26)	5. _____	5. _____
6. _____	_____ (27)	6. _____	6. _____
7. _____	_____ (28)	7. _____	7. _____
8. _____	_____ (29)	8. _____	8. _____
9. _____	_____ (30)	9. _____	9. _____
10. _____	_____ (31)	10. _____	10. _____
11. _____	_____ (32)	11. _____	11. _____
12. _____	_____ (33)	12. _____	12. _____
13. _____	_____ (34)	13. _____	13. _____
14. _____	_____ (35)	14. _____	14. _____
15. _____	_____ (36)	15. _____	15. _____
16. _____	_____ (37)	16. _____	16. _____
17. _____	_____ (38)	17. _____	17. _____
18. _____	_____ (39)	18. _____	18. _____
19. _____	_____ (40)	19. _____	19. _____
20. _____	_____ (41)	20. _____	20. _____
21. _____	_____ (42)	21. _____	21. _____
22. _____	_____ (43)	22. _____	22. _____
23. _____	_____ (44)	23. _____	23. _____
24. _____	_____ (45)	24. _____	24. _____

(46)

90

Number = _____ [1-4]

Date _____

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

PERSONAL NETWORK

First Name or Initials	Relationship	Question 3: How much can you confide in this person?	Question 4: How much does this person agree with or support your actions or thoughts?
1. _____	_____ [22]	1. _____	1. _____
2. _____	_____ [23]	2. _____	2. _____
3. _____	_____ [24]	3. _____	3. _____
4. _____	_____ [25]	4. _____	4. _____
5. _____	_____ [26]	5. _____	5. _____
6. _____	_____ [27]	6. _____	6. _____
7. _____	_____ [28]	7. _____	7. _____
8. _____	_____ [29]	8. _____	8. _____
9. _____	_____ [30]	9. _____	9. _____
10. _____	_____ [31]	10. _____	10. _____
11. _____	_____ [32]	11. _____	11. _____
12. _____	_____ [33]	12. _____	12. _____
13. _____	_____ [34]	13. _____	13. _____
14. _____	_____ [35]	14. _____	14. _____
15. _____	_____ [36]	15. _____	15. _____
16. _____	_____ [37]	16. _____	16. _____
17. _____	_____ [38]	17. _____	17. _____
18. _____	_____ [39]	18. _____	18. _____
19. _____	_____ [40]	19. _____	19. _____
20. _____	_____ [41]	20. _____	20. _____
21. _____	_____ [42]	21. _____	21. _____
22. _____	_____ [43]	22. _____	22. _____
23. _____	_____ [44]	23. _____	23. _____
24. _____	_____ [45]	24. _____	24. _____

Number _____ [1-4]

Date _____

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

Question 5:

If you needed to borrow $10, a ride to the doctor, or some other immediate help, how much could this person usually help?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

Question 6:

If you were confined to bed for several weeks, how much could this person help you?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

PERSONAL NETWORK

	First Name or Initials	Relationship	
1.	_____	_____	[32]
2.	_____	_____	[33]
3.	_____	_____	[34]
4.	_____	_____	[35]
5.	_____	_____	[36]
6.	_____	_____	[37]
7.	_____	_____	[38]
8.	_____	_____	[39]
9.	_____	_____	[40]
10.	_____	_____	[41]
11.	_____	_____	[42]
12.	_____	_____	[43]
13.	_____	_____	[44]
14.	_____	_____	[45]
15.	_____	_____	[46]
16.	_____	_____	[47]
17.	_____	_____	[48]
18.	_____	_____	[49]
19.	_____	_____	[50]
20.	_____	_____	[51]
21.	_____	_____	[52]
22.	_____	_____	[53]
23.	_____	_____	[54]
24.	_____	_____	[55]

[56]

Number _____ [1-4]

Date _____

PERSONAL NETWORK

	First Name or Initials	Relationship	
1.	_____	_____	[32]
2.	_____	_____	[33]
3.	_____	_____	[34]
4.	_____	_____	[35]
5.	_____	_____	[36]
6.	_____	_____	[37]
7.	_____	_____	[38]
8.	_____	_____	[39]
9.	_____	_____	[40]
10.	_____	_____	[41]
11.	_____	_____	[42]
12.	_____	_____	[43]
13.	_____	_____	[44]
14.	_____	_____	[45]
15.	_____	_____	[46]
16.	_____	_____	[47]
17.	_____	_____	[48]
18.	_____	_____	[49]
19.	_____	_____	[50]
20.	_____	_____	[51]
21.	_____	_____	[52]
22.	_____	_____	[53]
23.	_____	_____	[54]
24.	_____	_____	[55]

[5-6]

Question 7:

How long have you known this person?

1 = less than 6 months
2 = 6 to 12 months
3 = 1 to 2 years
4 = 2 to 5 years
5 = more than 5 years

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

Question 8:

How frequently do you usually have contact with this person? (Phone calls, visits, or letters)

5 = daily
4 = weekly
3 = monthly
2 = a few times a year
1 = once a year or less

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

9. During the past year, have you lost any important relationships due to moving, a job change, divorce or separation, death, or some other reason? (57)

_____ 0. No
_____ 1. Yes

IF YES:

9a. Please indicate the number of persons from each category who are *no longer available* to you

_____ spouse or partner (58)
_____ family members or relatives (59-60)
_____ friends (61-62)
_____ work or school associates (63-64)
_____ neighbors (65-66)
_____ health care providers (67)
_____ counselor or therapist (68)
_____ minister/priest/rabbi (69)
_____ other (specify) _____ (70) (71-72)

9b. Overall, how much of your support was provided by these people who are no longer available to you? (73)

_____ 0. none at all
_____ 1. a little
_____ 2. a moderate amount
_____ 3. quite a bit
_____ 4. a great deal

Appendix 2

Nursing Child Assessment Feeding Scale

UNIVERSITY OF WASHINGTON
SCHOOL OF NURSING
NURSING CHILD ASSESSMENT TRAINING

FEEDING SCALE
BIRTH TO ONE YEAR)

RECORDER'S NAME _____

DATE _____

CHILD'S FIRST NAME _____

CHILD'S AGE (IN MONTHS) _____

CHILD'S SEX _____

CHILD'S RACE _____

PARITY _____

MOTHER'S EDUCATION (CIRCLE)
(IN YRS) 8 ESA 7 8-9-10-11 12-13-14-
15-16-17-18-19-20+

MARITAL STATUS (CIRCLE)
MARRIED NOT MARRIED

MOTHER'S AGE AT BIRTH OF CHILD _____

SOCIAL SETTING (TIME CIRCLE)

PERSON OBSERVED IN INTERACTION (CIRCLE)
MOTHER FATHER OTHER

MAJOR CAREGIVER (CIRCLE)
YES NO

TYPE OF FEEDING (CIRCLE)
BREAST BOTTLE SOLID

LENGTH OF FEEDING (CIRCLE)
10 OR LESS 10-20 20-30 30 OR MORE

SETTING (CIRCLE)
HOME CLINIC OTHER

		YES	NO
I	SENSITIVITY TO CUES		
1	PARENT POSITIONS CHILD SO THAT CHILD IS SAFE BUT CAN MOVE HIS ARMS		
2	PARENT POSITIONS CHILD SO THAT THE CHILD'S HEAD IS HIGHER THAN HIPS		
3	PARENT POSITIONS CHILD SO THAT TRUNK-TO-TRUNK CONTACT IS MAINTAINED DURING MORE THAN HALF OF THE BREAST OR BOTTLE FEEDING (50%+)		
4	PARENT POSITIONS CHILD SO THAT EYE-TO-EYE CONTACT IS POSSIBLE		
5	PARENT'S FACE IS AT LEAST 7-8 INCHES OR MORE FROM THE CHILD'S FACE DURING FEEDING EXCEPT WHEN KISSING, CARESSING, HUGGING OR BURPING THE CHILD		
6	PARENT SMILES, VERBALIZES OR MAKES EYE CONTACT WITH CHILD WHEN CHILD IS IN OPEN FACE GAZE POSITION		
7	PARENT COMMENTS VERBALLY ON CHILD'S HUNGER CUES PRIOR TO FEEDING		
8	PARENT COMMENTS VERBALLY ON CHILD'S SATIATION CUES BEFORE TERMINATING FEEDING		
9	PARENT VARIES THE INTENSITY OF VERBAL STIMULATION DURING FEEDING		
10	PARENT VARIES INTENSITY OF ROCKING OR MOVING THE CHILD DURING THE FEEDING		
11	PARENT VARIES THE INTENSITY OF TOUCH DURING THE FEEDING		
12	PARENT ALLOWS PAUSES IN FEEDING WHEN THE CHILD INDICATES BY CRY FACE, HALT HAND, BACK ARCHING, PULLING AWAY, PUSHING FOOD AWAY, TRAY POUNDING, TURNING HEAD, SHAKING HEAD NO OR SAYING NO, OR FALLING ASLEEP OR WHEN CHILD IS IN PAUSE PHASE OF THE BURST-PAUSE SEQUENCE OF SUCKING (75%+ OF THE TIME)		
13	PARENT SLOWS PACE OF FEEDING OR PAUSES WHEN CHILD AVERTS GAZE, PLACES HAND TO EAR, HAND-TO-MOUTH, HAND-BEHIND-HEAD, HAND-BACK-OF-NECK, HANDS OVER STOMACH, YAWNS, RUBS EYE OR DISPLAYS FEET MOVEMENT (75%+ OF THE TIME)		
14	PARENT TERMINATES THE FEEDING WHEN THE CHILD TURNS HEAD, FALLS ASLEEP, COMPRESSES LIPS, PUSHES FOOD AWAY, SHAKES HEAD NO, OR SAYS NO ONCE OR MORE OR AFTER OTHER METHODS (REPOSITIONING, BURPING OR WAITING) HAVE PROVED UNSUCCESSFUL		
*15	PARENT DOES NOT INTERRUPT CHILD'S SUCKING OR CHEWING BY REMOVING THE NIPPLE, JIGGLING THE NIPPLE, OR OFFERING THE CHILD MORE OR OTHERWISE OF FOOD WHILE CHILD IS EATING		
*16	PARENT DOES NOT OFFER FOOD WHEN THE CHILD LOOKS AWAY, LOOKS DOWN, TURNS AWAY OR TURNS AROUND		
	SUBSCALE TOTAL (NO. OF YES ANSWERS)		
II	RESPONSE TO DISTRESS (INDICATE IN BOX WHETHER OCCURRED OR NOT IF NO DISTRESS, MARK EACH BOX YES)		
	IF CHILD SHOWS DISTRESS DURING THE FEEDING DOES THE PARENT		
17	STOP OR START FEEDING IN RESPONSE TO THE CHILD'S DISTRESS.		
18	CHANGE THE CHILD'S POSITION IN RESPONSE TO CHILD'S DISTRESS.		
19	MAKE POSITIVE OR SYMPATHETIC VERBALIZATION IN RESPONSE TO CHILD'S DISTRESS.		
20	CHANGES VOICE VOLUME TO SOFTER OR HIGHER PITCH IN RESPONSE TO CHILD'S DISTRESS		
21	MAKES SOOTHING NON-VERBAL EFFORTS IN RESPONSE TO CHILD'S DISTRESS		
22	DIVERTS CHILD'S ATTENTION BY PLAYING GAMES, INTRODUCING A TOY, OR MAKING FACES IN RESPONSE TO CHILD'S DISTRESS		
23	PARENT DOES NOT MAKE NEGATIVE VERBAL RESPONSE IN RESPONSE TO CHILD'S DISTRESS.		
24	PARENT DOES NOT MAKE NEGATIVE COMMENTS TO HOME VISITOR ABOUT CHILD IN RESPONSE TO CHILD'S DISTRESS.		

*NEED ONLY OCCUR ONCE TO SCORE NO

		YES	NO
25	PARENT DOES NOT YELL AT THE CHILD IN RESPONSE TO HIS DISTRESS		
26	PARENT DOES NOT USE ABRUPT MOVEMENTS OR ROUGH HANDLING IN RESPONSE TO CHILD'S DISTRESS		
27	PARENT DOES NOT SLAP HIT OR SPANK CHILD IN RESPONSE TO DISTRESS		
	SUBSCALE TOTAL (NO. OF YES ANSWERS)		
III	SOCIAL EMOTIONAL GROWTH FOSTERING		
28	PARENT PAYS MORE ATTENTION TO CHILD DURING FEEDING THAN TO OTHER PEOPLE OR THINGS IN ENVIRONMENT		
29	PARENT IS IN EN FACE POSITION FOR MORE THAN HALF OF THE FEEDING (50%+)		
30	PARENT SUCCEEDS IN MAKING EYE CONTACT WITH CHILD ONCE DURING FEEDING		
31	PARENT'S FACIAL EXPRESSION CHANGES AT LEAST TWICE DURING FEEDING		
32	PARENT ENGAGES IN SOCIAL FORMS OF INTERACTION (PLAYS GAMES WITH CHILD) AT LEAST ONCE DURING THE FEEDING		
33	PARENT USES POSITIVE STATEMENTS IN TALKING TO CHILD DURING THE FEEDING		
34	PARENT PRAISES CHILD OR SOME QUALITY OF THE CHILD'S BEHAVIOR DURING THE FEEDING		
35	PARENT HUMS, CROONS, SINGS OR CHANGES THE PITCH OF HIS/HER VOICE DURING THE FEEDING		
36	PARENT LAUGHS OR SMILES DURING THE FEEDING		
37	PARENT USES GENTLE FORMS OF TOUCHING DURING THE FEEDING		
38	PARENT SMILES, VERBALIZES OR TOUCHES CHILD WITHIN 5 SECONDS OF CHILD SMILING OR VOCALIZING AT PARENT		
39	PARENT DOES NOT COMPRESS LIPS (GRIMACE OR FROWN WHEN MAKING EYE CONTACT WITH CHILD		
40	PARENT DOES NOT SLAP HIT, SHAKE, OR GRAB CHILD OR CHILD'S EXTREMITIES DURING THE FEEDING		
41	PARENT DOES NOT MAKE NEGATIVE OR UNCOMPLIMENTARY REMARKS TO THE CHILD OR HOME VISITOR ABOUT THE CHILD OR CHILD'S BEHAVIOR		
	SUBSCALE TOTAL (NO. OF YES ANSWERS)		
IV	COGNITIVE GROWTH FOSTERING		
42	PARENT PROVIDES CHILD WITH OBJECTS, FINGER FOODS, TOYS, AND/OR UTENSILS		
43	PARENT ENCOURAGES AND/OR ALLOWS THE CHILD TO EXPLORE THE BREAST, BOTTLE, FOOD, CUP, BOWL, OR THE PARENT DURING FEEDING.		
44	PARENT TALKS TO THE CHILD USING TWO WORDS AT LEAST THREE TIMES DURING THE FEEDING.		
45	PARENT VERBALLY DESCRIBES SOME ASPECT OF THE FOOD OR FEEDING SITUATION TO CHILD DURING FEEDING.		
46	PARENT TALKS TO CHILD ABOUT THINGS OTHER THAN FOOD, EATING, OR THINGS RELATED TO THE FEEDING		
47	PARENT USES STATEMENTS THAT DESCRIBE, ASK QUESTIONS OR EXPLAINS CONSEQUENCES OF BEHAVIOR MORE THAN COMMANDS IN TALKING TO THE CHILD		
48	PARENT VERBALIZES TO CHILD WITHIN FIVE SECONDS AFTER CHILD HAS VOCALIZED		
49	PARENT VERBALIZES TO CHILD WITHIN FIVE SECONDS AFTER CHILD'S MOVEMENT OF ARMS, LEGS, HANDS, HEAD, TRUNK		
50	PARENT DOES NOT TALK BABY TALK		
	SUBSCALE TOTAL (NO. OF YES ANSWERS)		

		YES	NO
V.	CLARITY OF CUES		
51	CHILD SIGNALS READINESS TO EAT		
52	CHILD DISPLAYS A BUILD-UP OF TENSION AT THE BEGINNING OF FEEDING		
53	CHILD DEMONSTRATES A DECREASE IN TENSION WITHIN A FEW MINUTES AFTER FEEDING HAS BEGUN		
54	CHILD HAS PERIODS OF ALERTNESS DURING THE FEEDING		
55	CHILD DISPLAYS AT LEAST TWO DIFFERENT EMOTIONS DURING THE FEEDING		
56	CHILD HAS PERIODS OF ACTIVITY AND INACTIVITY DURING THE FEEDING		
57	CHILD'S MOVEMENTS ARE SMOOTH AND COORDINATED DURING THE FEEDING		
58	CHILD'S ARM AND LEG MOVEMENTS ARE GENERALLY DIRECTED TOWARD PARENT DURING FEEDING (NOT DIFFUSE)		
59	CHILD MAKES CONTACT WITH PARENT'S FACE OR EYES AT LEAST ONCE DURING FEEDING		
60	CHILD VOCALIZES DURING FEEDING		
61	CHILD SMILES OR LAUGHS DURING FEEDING		
62	CHILD AVERTS GAZE, LOOKS DOWN OR TURNS AWAY DURING FEEDING		
63	CHILD ACTIVELY RESISTS FOOD OFFERED		
64	CHILD DEMONSTRATES SATISFACTION AT END OF FEEDING THROUGH SLEEP, FACIAL EXPRESSIONS, DECREASED MUSCLE TONE, ARMS EXTENDED ALONG SIDE, VOCALIZATIONS OR CHANGE IN ACTIVITY LEVEL OR MOOD		
65	CHILD DOES NOT HAVE MORE THAN TWO RAPID STATE CHANGES DURING FEEDING		
	SUBSCALE TOTAL (NO. OF YES ANSWERS)		
VI	RESPONSIVENESS TO PARENT		
66	CHILD RESPONDS TO FEEDING ATTEMPTS BY PARENT DURING FEEDING		
67	CHILD RESPONDS TO GAMES, SOCIAL PLAY OR SOCIAL CUES OF PARENT DURING FEEDING		
68	CHILD LOOKS IN THE DIRECTION OF THE PARENT'S FACE AFTER PARENT HAS ATTEMPTED TO ALERT THE CHILD VERBALLY OR NON-VERBALLY DURING FEEDING		
69	CHILD VOCALIZES TO PARENT DURING FEEDING.		
70	CHILD VOCALIZES OR SMILES WITHIN 5 SECONDS OF PARENT'S VOCALIZATION		
71	CHILD SMILES AT PARENT DURING FEEDING.		
72	CHILD EXPLORES PARENT OR REACHES OUT TO TOUCH PARENT DURING FEEDING		
73	CHILD SHOWS A CHANGE IN LEVEL OF MOTOR ACTIVITY WITHIN 5 SECONDS OF BEING HANDLED OR REPOSITIONED BY PARENT		
74	CHILD SHOWS POTENT DISENGAGEMENT CUES DURING LAST HALF OF FEEDING.		
75	CHILD SHOWS POTENT DISENGAGEMENT CUES WITHIN 5 SECONDS AFTER PARENT MOVES CLOSER THAN 7 TO 8 INCHES FROM CHILD'S FACE.		
76	CHILD DOES NOT TURN AWAY OR AVERT GAZE FROM PARENT DURING FIRST HALF OF FEEDING.		
	SUBSCALE TOTAL (NO. OF YES ANSWERS)		

ENTER TOTALS FOR EACH CATEGORY

SENSITIVITY TO CUES	
RESPONSE TO DISTRESS	
SOCIAL-EMOTIONAL GROWTH FOSTERING	
COGNITIVE GROWTH FOSTERING	
CLARITY OF CUES	
RESPONSIVENESS TO PARENT	
TOTAL (NO. OF YES ANSWERS)	

HOME VISIT QUESTIONS

1 WOULD YOU SAY THIS WAS A TYPICAL FEEDING?
A YES B NO
IF NO, WHY NOT?

2 WERE YOU UNCOMFORTABLE DURING ANY PART OF THE FEEDING DUE TO MY PRESENCE?
A YES B NO
IF YES, WHY?

3 DO YOU HAVE ANY CONCERNS ABOUT THE FEEDING OR YOUR CHILD'S EATING?
A YES NO
IF YES, SPECIFY

4 OBSERVER'S COMMENTS

NURSING CHILD ASSESSMENT SATELLITE TRAINING
UNIVERSITY OF WASHINGTON
SCHOOL OF NURSING, WJ-10
SEATTLE, WASHINGTON 98195
USA
(206) 543-8528

Appendix 3

Informed Consent Form

Title of Research Project:
Social Support and Maternal-Infant Interaction in Older Adolescent Mother-Infant Dyads

Investigator:
Deborah White, Graduate Student
Faculty of Nursing
University of Alberta
Edmonton, Alberta
Telephone: 734-2498

Supervisor:
Dr. P. A. Field
Faculty of Nursing
University of Alberta,
Edmonton, Alberta
Telephone:432-6248

The purpose of the study and research procedures have been explained to me. I understand that the researcher will be visiting my baby and me once in my home, at six to seven weeks following discharge from the hospital. I understand that I will be observed while I am feeding my baby and that I will be asked to complete a social support questionnaire.

I understand that I am free to withdraw from the study at anytime. I understand the information obtained will remain confidential. Names will not be used in the study, each mother will be assigned a code number that will be used to identify answers to the questionnaire, personal information and the investigator recorded observations. The information will be kept in a locked cabinet and will be destroyed three years after the study is completed. I have been assured there will be no harm to me or my baby by participating.

If any observations indicate that there is a potential health problem with the infant this will be discussed with you. There may however be circumstances where the investigator has a legal responsibility to discuss the problem with a health care worker. I consent to participate in this study and allow my baby to participate.

_____ _____

(Name of Mother) (Signature of Mother)

_____ _____

(Signature of Witness) (Date)

Attachment to Consent Form

Title of Research Project:

Social Support and Maternal-Infant Interaction in Older Adolescent Mother-Infant Dyads

Investigator:
Deborah White, Graduate Student
Faculty of Nursing
University of Alberta
Edmonton, Alberta
Telephone: 734-2498

Supervisor:
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Description of the Purpose of the Study:

The purpose of this study is to learn more about how mothers relate to their baby and the support provided to them by their friends, relatives, family, etc.

THE PROCEDURE:

Six to seven weeks following discharge from the hospital you will be asked to complete written answers to some questions about who provides support for you. This process will take approximately 15 minutes. The interviewer will also record her observations of you feeding your baby at this visit. The length of the visit will be approximately one hour.

RISKS AND BENEFITS:

There is no risk to you or your baby from taking part in this study. The benefit is that you can learn more about yourself and your baby.

CONFIDENTIALITY:

Each mother will be assigned a code number that will be used to identify answers to the questionnaire, personal information and the investigators recorded observations. All information will be kept in locked files and will be destroyed in three years.

CONDITIONS OF PARTICIPATION:

You may ask any questions you have about the study. You are free to withdraw from the study at any time.

Appendix 4

Biographical Data

1. Age ___
2. Marital Status
   __1. single, never married
   __2. married
   __3. divorced or separated
   __4. widowed
3. Educational Level

What is the highest grade of regular school that you completed? (Circle one)

Grade School	High School	College
1 2 3 4 5 6 7 8 9	10 11 12	13 14

4. Ethnic Background
   __1. Asian
   __2. Black
   __3. Caucasian
   __4. Native
   __5. Hispanic
   __6. Other
5. Living Arrangements:

__alone __boyfriend
__mother __spouse
__mother and father __friend
__relatives

6. Have you taken baby-sitting courses? Yes _____No _____
7. Have you cared for young infants previously?

Yes _____
No _____

How often? 0-10 _____ 10-20 _____ 20-30 _____

8. Yearly Income
   1. Less than $10,000 _____ 4. $30,000 - $39,000 _____
   2. $10,000 - $19,000 _____ 5. $40,000 - $49,000 _____
   3. $20,000 - $29,000 _____ 6. $50,000 and over _____

Newborn information (from chart)

1. Sex _____

2. Birth date (month, day, year, time) _____

3. Birth weight (grams) _____

4. Gestational age at birth (weeks) _____

5. Delivery a) vaginal____ b) cesarian section____

6. Date of discharge from hospital_____

Contact information

Name _____

Address _____

Phone Number _____

Additional Contact Person _____

_____

Appendix 5

Pearson Correlations of the NSSQ Subscale Scores

	NOLIST	AFFECT	AFFIRM	AID	DURATION	FREQCON	LOSS	LOSSNO	LOSSAMT
NOLIST	1.0000	.9569	.9470	.8993	.9743	.9834	.0246	-.2695	-.2015
	(0)	(30)	(30)	(30)	(30)	(30)	(30)	(14)	(30)
	P= .	P= .000	P= .000	P= .000	P=0.0	P= .000	P= .449	P= .176	P= .143
AFFECT	.9569	1.0000	.9370	.8818	.9443	.9524	.0238	-.2924	-.2188
	(30)	(0)	(30)	(30)	(30)	(30)	(30)	(14)	(30)
	P= .000	P= .	P= .000	P= .000	P= .000	P= .000	P= .450	P= .155	P= .123
AFFIRM	.9470	.9370	1.0000	.9413	.9198	.9296	-.0422	-.2784	-.1837
	(30)	(30)	(0)	(30)	(30)	(30)	(30)	(14)	(30)
	P= .000	P= .000	P= .	P= .000	P= .000	P= .000	P= .412	P= .168	P= .166
AID	.8993	.8818	.9413	1.0000	.8821	.8535	-.0198	-.2089	-.1831
	(30)	(30)	(30)	(0)	(30)	(30)	(30)	(14)	(30)
	P= .000	P= .000	P= .000	P= .	P= .000	P= .000	P= .459	P= .237	P= .171
DURATION	.9743	.9443	.9198	.8821	1.0000	.9615	.0529	-.1831	-.1818
	(30)	(30)	(30)	(30)	(0)	(30)	(30)	(14)	(30)
	P=0.0	P= .000	P= .000	P= .000	P= .	P= .000	P= .391	P= .265	P= .168
FREQCON	.9834	.9524	.9296	.8535	.9615	1.0000	-.0228	-.3282	-.2655
	(30)	(30)	(30)	(30)	(30)	(0)	(30)	(14)	(30)
	P= .000	P= .000	P= .000	P= .000	P= .000	P= .	P= .452	P= .126	P= .078
LOSS	.0246	.0238	-.0422	-.0198	.0529	-.0228	1.0000	.2298	.7821
	(30)	(30)	(30)	(30)	(30)	(30)	(0)	(14)	(30)
	P= .449	P= .450	P= .412	P= .459	P= .391	P= .452	P= .	P= .215	P= .000
LOSSNO	-.2695	-.2924	-.2784	-.2089	-.1831	-.3282	.2298	1.0000	.5482
	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(0)	(14)
	P= .176	P= .155	P= .168	P= .237	P= .265	P= .126	P= .215	P= .	P= .021
LOSSAMT	-.2015	-.2188	-.1837	-.1801	-.1818	-.2655	.7821	.5482	1.0000
	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(14)	(0)
	P= .143	P= .123	P= .166	P= .171	P= .168	P= .078	P= .000	P= .021	P= .

(COEFFICIENT / (CASES) / 1-TAILED SIG) " . " IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED

Appendix 6

Pearson Correlations of NCAFS Scores with Functional Subscale Scores and Size of Network

NCAFS Scores	NSSQ Scores			
	Size	Affect	Affirm	Aid
Total	.34	.44*	.40*	.35
Infant	.17	.29	.24	.18
Maternal	.38*	.47*	.44*	.38*

p<.01* 1-tailed (N=30)

Appendix 7

Pearson Correlations of Average Social Support Scores with NCAFS Scores for Mothers Living Alone

	AVEAFFCT	AVEAFFRM	AVEAID	MINTTOT	INFINTTO	MINFINT
AVEAFFCT	1.0000	-.2814	.9984	.9138	.5367	.8531
	(0)	(3)	(3)	(3)	(3)	(3)
	P= .	P= .409	P= .018	P= .133	P= .320	P= .175
AVEAFFRM	-.2814	1.0000	-.2272	.1327	.6586	.2606
	(3)	(0)	(3)	(3)	(3)	(3)
	P= .409	P= .	P= .427	P= .458	P= .271	P= .416
AVEAID	.9984	-.2272	1.0000	.9351	.5831	.8810
	(3)	(3)	(0)	(3)	(3)	(3)
	P= .018	P= .427	P= .	P= .115	P= .302	P= .157
MINTTOT	.9138	.1327	.9351	1.0000	.8332	.9915
	(3)	(3)	(3)	(0)	(3)	(3)
	P= .133	P= .458	P= .115	P= .	P= .187	P= .042
INFINTTO	.5367	.6586	.5831	.8332	1.0000	.8981
	(3)	(3)	(3)	(3)	(0)	(3)
	P= .320	P= .271	P= .302	P= .187	P= .	P= .145
MINFINT	.8531	.2606	.8810	.9915	.8981	1.0000
	(3)	(3)	(3)	(3)	(3)	(0)
	P= .175	P= .416	P= .157	P= .042	P= .145	P= .